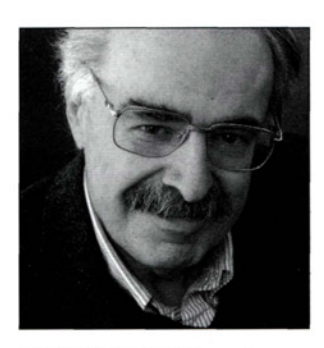
Fortress



The Spanish Main 1492–1800

René Chartrand • Illustrated by Donato Spedaliere



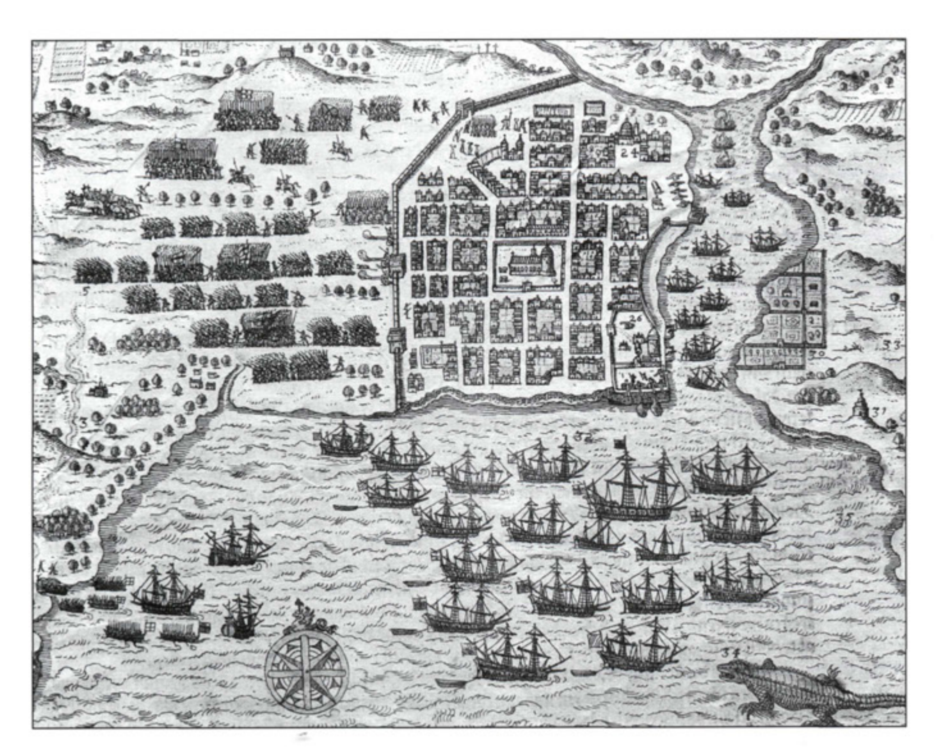
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Fortress • 49

The Spanish Main 1492–1800



René Chartrand • Illustrated by Donato Spedaliere

Series editors Marcus Cowper and Nikolai Bogdanovic

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Author's note

The 'Spanish Main', which broadly encompasses the West Indies, is replete in any imagination with evocations of fabulous gold and silver treasure, pirates, corsairs, buccaneers and Spaniards fighting it out, yellow fever and death, human excesses of all types, beautiful islands and great fortifications. Indeed, there came to be so many forts of all types that it is impossible to name them all. This concise book attempts to relate their evolution as fortification systems and their fate over three centuries. Many books have dealt with individual fortifications in the Spanish Main, but this book appears to be the first study to encompass the fortifications of the whole area.

Artist's note

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Weights and measures

These have varied over the centuries and differed from one nation to the other. In the Spanish Main, weights and measures were those used by the mother country. It is most important to note that the Spanish foot, used in the Spanish colonies, was not the same as the English foot. The measures were:
1 vara castallena (Castillian yard) = 36 pulgadas (inches) = 0.8356m.
1 pie castellano (Castillian foot) = ⅓ de vara = 12 pulgadas = 0.2786m.
1 pulgada castellana (Castillian inch) = 0.0232m = 23.2mm.
1 libra de Castilla (Castillian pound) = 460g = 16 onzas.
1 onza (once) = 16 adarmes = 28.5g.

Spanish names and titles have been used in most cases. Thus, King Charles III is Carlos III. Exceptions are made for locations such as Havana or St Augustine where the English form is the most familiar in the Anglophone world.

The Fortress Study Group (FSG)

The object of the FSG is to advance the education of the public in the study of all aspects of fortifications and their armaments, especially works constructed to mount or resist artillery. The FSG holds an annual conference in September over a long weekend with visits and evening lectures, an annual tour abroad lasting about eight days, and an annual Members' Day.
The FSG journal *FORT* is published annually, and its newsletter *Casemate* is published three times a year. Membership is international. For further details, please contact:
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The Coast Defense Study Group (CDSG)

The Coast Defense Study Group (CDSG) is a non-profit corporation formed to promote the study of coast defenses and fortifications, primarily but not exclusively those of the United States of America; their history, architecture, technology, and strategic and tactical employment. Membership in the CDSG includes four issues of the organization's two quarterly publications the Coast Defense Journal and the CDSG Newsletter. For more information about the CDSG please visit www.cdsg.org or to join the CDSG write to:
[Attn: Glen Williford] Coast Defense Study Group, Inc., 634 Silver Dawn Court, Zionsville, IN 46077-9088, USA

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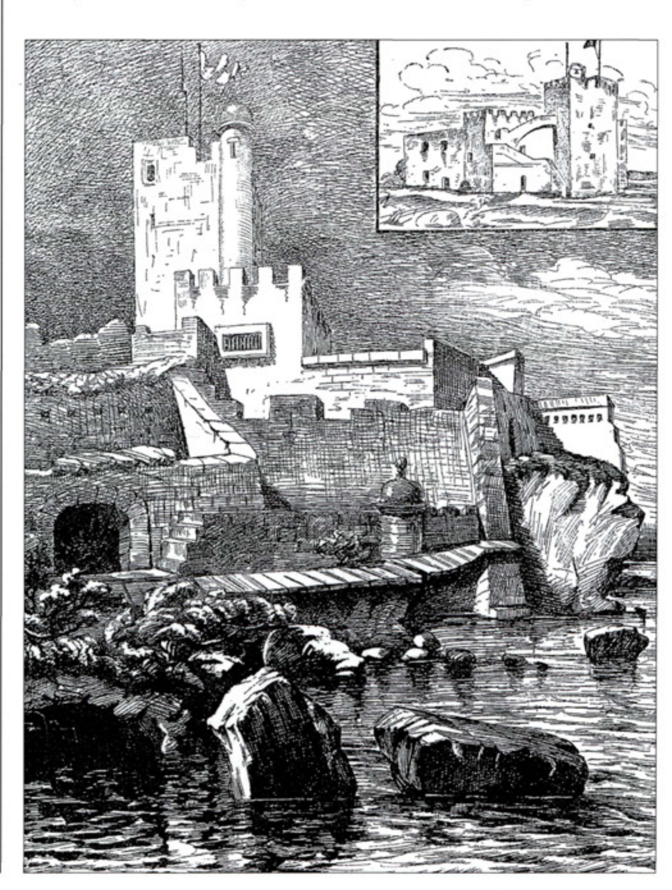
Introduction

Rear view of the *Torre de Homenaje* (Tower of Homage) within the *Fortaleza Ozama* (Fortress Ozama) in Santo Domingo according to a late 19th-century print. These fortifications were built between 1502 and 1508 in the typical architectural style of European castles. Diego Columbus, the son of the discoverer of America, lived in the tower with his wife Maria de Toledo in 1509–10. By the later 19th century, some degradation of the lower wall had occurred, but the medieval-style tower was much as it is today apart from the flagpole. In the inset is a front view, which shows it to have been almost identical to its present appearance, and is proof that this early 16th-century castle in America survived the centuries remarkably well. (Author's collection)

When Christopher Columbus landed in the Bahamas in 1492, he thought he had arrived in India, and so the exotic islands were referred to as the 'Indias' — the Indies. Two years later, the Treaty of Tordesillas imposed some sort of legislation on the world of exploration, when Pope Alexander VI divided the new lands between Spain and Portugal. An imaginary line was drawn 370 leagues west of the Azores: land to the east of this line belonged to Portugal, while land to the west devolved to Spain. As it was soon realized that they had discovered a whole new continent, the land became the Spanish Indies, which theoretically encompassed the whole American continent except for Portuguese Brazil. The early Spanish settlements were located in the sea of the Carib Indians, which became known as the Caribbean Sea. The news of fabulous wealth found by the Spaniards soon aroused the interest of the French and the English in overseas ventures. The English term 'Spanish Main' originally applied to the northern shores of South America, but during the 16th century it came to refer to the whole West Indian area and the Spanish settlements on the shores of the adjacent mainland.

Changing fort styles

The forts the Spanish built in America can be loosely separated into three distinct categories that broadly equate to three periods in time. The initial era could be termed the 'castle period', which lasted from the end of the 15th century to the end of the 16th century. The *casas fuertes* or strong houses, also called *castillos* or castles, appeared from 1492 and thrived until the later part of the 16th century. Simple but sturdy structures, these castles were essentially European medieval castles transposed to America. They consisted of turrets connected by walls on a square or rectangular plan. In some cases, these would form a large single tower, which was meant to be a stronghold. The first such substantial work was built at Santo Domingo (now Dominican Republic), followed by others in Havana (Cuba) and San Juan (Puerto Rico).



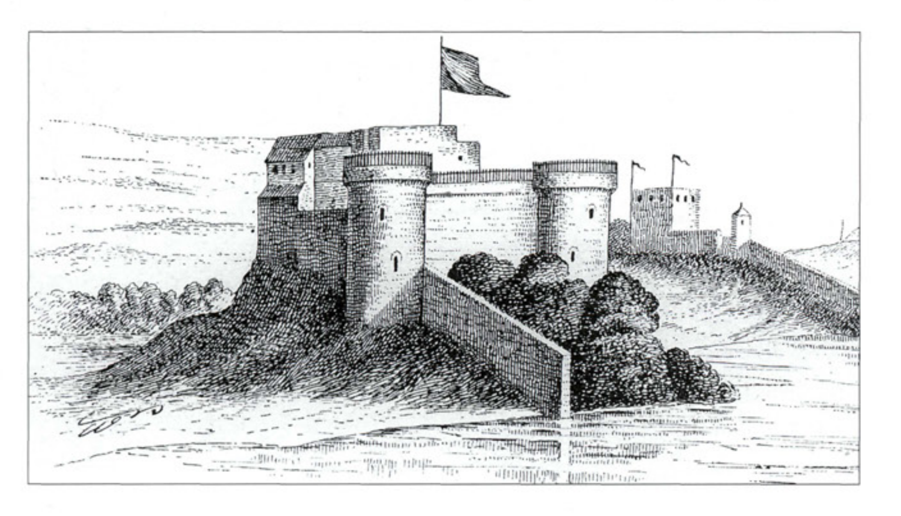
The next era, from *c.*1550 until *c.*1760, could be called the 'bastion period'. From the middle of the 16th century, seaports in the Spanish Main were subject to devastating attacks by pirates, corsairs and enemy fleets, and the existing medieval-style defences were clearly inadequate. Bastioned forts were replacing castles in Europe, and in 1558 the first fort in America featuring bastions was built in Havana. King Felipe II responded to these incursions by approving 'A Defence Plan for the Caribbean' in 1588. It called for the construction of a large network of forts at ten key points in the Spanish Main, either by reinforcing existing fortifications or erecting new ones. These forts were built according to the latest designs in military engineering, featuring lower walls,



triangular bastions and other refinements. Over the years, important secondary sites were also fortified. As Spain's naval and military power declined during the 17th century, towns were still taken by pirates and corsairs and this prompted the construction of city walls as well as substantial bastioned forts. By the early 18th century, Spain was regaining its place as a major power so that more ships and troops became available for colonial defence. By then, the towns of the Spanish Main were far better fortified and usually managed to repulse sizeable attacks.

The third and last era could be referred to as the 'citadel period'. With the fall of Havana, the city considered the key to the entire network, in 1762 the defence of the Spanish Main was revealed to be inadequate. The fortifications that had mostly been built in the two preceding centuries were shown to be antiquated, and the whole system of garrisons and militias manning the forts failed when facing large, well-trained expeditionary forces. King Carlos III, one of Spain's most enlightened rulers, ordered a complete, rapid and thorough revamping of the Spanish Main's defence system, from the fortifications to the garrisons and local militias. From the 1760s, truly outstanding and impressive works were built in the main seaports that made them virtually impregnable by the standards of the time. The speed at which all these measures were ordered and implemented is remarkable, even by today's standards. Over the next dozen years, tremendous Vauban-style fortifications were built in Havana and at San Juan in Puerto Rico, while great improvements were made elsewhere, notably at Cartagena de Indias and, later on, at Veracruz. At the same time, the colonial troops were restructured and the rotation of metropolitan units was introduced, while the militias were totally reorganized and greatly expanded.

The castle built in Mexico City during 1521 on Cortez's orders. In his report, he mentioned a large citadel featuring 'two very strong towers with their embrasures and loopholes' connected by a construction forming three arches. Vessels could sail under them in and out of the lake that then surrounded Mexico City. What was obviously a substantial medieval-style castle was interpreted in this detail from a 16th-century view of Mexico City after Montanus. (Author's collection)



La Fortaleza at San Juan, Puerto Rico, in the second half of the 16th century. With its two large round towers, this fort was one of the best examples of the medieval-style castle architecture favoured by the Spanish in America during the first half of the 16th century. The towers still survive as part of the residence of Puerto Rico's governor. Engraving after a Dutch print of the period. (Author's collection)

Chronology

1492	Christopher Columbus discovers what will become known as America and takes possession of the new lands in the name of Spain. Fort La Navidad built on the island of Hispaniola (now Haiti and the Dominican Republic).
1494	Settlement of La Isabela founded on Hispaniola (abandoned in 1498). Treaty of Tordesillas confirms division made by Pope Alexander VI to share the New World between Spain and Portugal.
1498	Town of Santo Domingo founded. Construction starts on a castle in 1502.
1508	Settlement of Puerto Rico begins. San Juan becomes its capital in 1521.
1510	Settlement at Darien; isthmus of Panama crossed by Balboa, who discovers the Pacific Ocean in 1513.
1511	Settlement of Cuba begins.
1519	Veracruz founded by Hernan Cortez on the Atlantic coast of Mexico, which is conquered by 1521 when a castle is built in Mexico City.
1524	Council of the Indies created by Emperor Carlos V.
1,524	Part of treasure from Mexico captured by French corsairs, which reveals to Europe the fabulous wealth of the Spanish booty.
1526–35	Conquest of Peru by Francisco Pizzaro. Peruvian treasure starts being shipped to Spain via Panama.
c.1530–50	Increasing numbers of mostly French corsairs roam the Spanish Main.
c.1570–90	English corsairs and pirates make numerous raids on the largely undefended towns of the Spanish Main, notably under Francis Drake.
1588	Fortification plan for the Spanish Main approved by King Felipe II.
1590s	Drake's 1595 attacks repulsed at San Juan (Puerto Rico) and Panama, but San Juan falls to English in 1598.
c.1620–50	French, English and Dutch adventurers occupy the smaller Antilles and Haiti. The weakened Spanish cannot drive them out.
1655	Jamaica captured by British troops.
1660–80s	Many towns of the Spanish Main attacked and sacked by pirates. Following the fall of St Augustine (1668), Panama (1671) and Veracruz (1683), the Spanish undertake major fortification works at these and other places.
1697	Cartagena de Indias captured by the French.
1702	Anglo-American siege of St Augustine fails.
c.1710–20	Pirates are outlawed by all nations and chased from the West Indies.
1739–41	British capture Portobello and Chagres fort, but fail to take Cartagena de Indias, Santiago de Cuba and St Augustine during the War of Jenkins' Ear.
1762	Britain declares war to Spain on 4 January. Havana captured by the British on 11 August.
1763	Florida is ceded to Britain, but Spain gains part of French Louisiana by the Treaty of Paris. Huge fortifications programme to improve defence of the Spanish Main begins.
1779–80	British capture forts San Juan (Nicaragua) and Omoa, but are forced by the Spanish to evacuate them.
1781	Spanish capture Pensacola from British. Florida is returned to Spain in 1783.
1797	British attack on San Juan, Puerto Rico, is repulsed. Trinidad falls to British.
1800	Louisiana and Santo Domingo ceded to France by a secret treaty which sells Louisiana to the United States in 1803, but Spanish garrison and officials remain until replaced by American troops in 1804.
1809	Santo Domingo captured from the French by British and Spanish forces.
1819–21	Florida is ceded to the United States of America.
1820s	Latin American nations declare their independence from Spain. Cuba and Puerto Rico remain Spanish until 1898.

Administrative organization of the Spanish Main

Viceroys and captains-general

From the date of their discovery in 1492, the new territories were initially under the rule of Christopher Columbus, who was to be viceroy, governor of the Indies, and admiral of the Ocean Sea according to the privileges granted to him and his heirs by the Spanish Crown. In reality, the administrative situation in the new territories was quite fluid, with local power struggles being frequent between governors, adventurers, priests and officials sent out by the Spanish government. After a few years, it became clear to 'the Catholic Kings', Fernando of Aragon and Isabella of Castille who jointly ruled Spain, that an independent legal and financial tribunal was also needed and the *Audiencia de Santo Domingo* was created in 1511 to impose order on the haphazard administration of the conquistadors. An *Audiencia de Mexico* appeared in 1527 and others were founded as the empire grew.

The question of executive power in this new empire was delicate. The Crown was to keep overall control, yet had to allow vast initiative to the senior officials in America while retaining their loyalty. The solution was found in an administrative delegation used in Aragon: the appointment of a viceroy. He was to be of unquestionable loyalty and reported directly to the king in Spain. In practice this was achieved via the ministers in the Council of the Indies, the Spanish governmental department established in 1524 to regulate overseas affairs. A viceroy enjoyed great prestige, pomp and ceremony in the colonies, where he was honoured as the king's representative. The first viceroyalty was established in New Spain in 1534, which made Mexico City the capital of the Spanish Main. The Viceroyalty of Peru followed in 1543, and between them they covered North and South America respectively. In 1739 the Viceroyalty of



Veracruz, Mexico in 1519. The Conquistador of Mexico, Hernan Cortez, ordered the ships he and his men sailed in scuttled – they would conquer the Aztec Empire or die. The ships were dismantled and provided the wood for the first fortifications on the mainland. Painting by R. Monleon. (Museo Naval, Madrid/author's collection)

New Grenada was set up to administer the northern part of South America and Panama. The last was the Viceroyalty of Rio de La Plata, organized in 1776, to cover what is now Argentina, Paraguay and Uruguay.

The viceroy's realm, which he ruled in the name of the Crown, was immense, and parts of it were delegated to captains-general, who answered directly to the king on military matters. In the Spanish Main, the captain-general of Cuba was the senior officer in the West Indies and Florida, and the captain-general of Guatemala ruled over what is now Central America. A captain-general of Venezuela was added in 1731. By the 18th century, Spanish America was subdivided into a number of military commands located at Havana, Santiago de Cuba, San Juan (Puerto Rico), Mexico City, Campeche, Guatemala, Panama, Cartegena de Indias, Caracas and Trinidad. Each command had an *Estado Mayor* – a general staff – of junior and senior staff officers such as engineers, and was under orders from either a viceroy or a captain-general. In all cases, commands were situated in the main towns of areas with a large population because they also supervised the militia, a role that became increasingly important with the advent of semi-permanent provincial militias from the 1760s. By the same token, some large fortresses such as Veracruz or St Augustine in Florida did not have a command general staff and were subject to, respectively, the viceroy of New Spain in Mexico City and the captain-general of Cuba in Havana.



Captain-General Pedro Menendez de Aviles was a naval commander of great ability who developed an effective convoy system to protect the treasure fleets sailing from the New World to Spain. He also organized squadrons of light vessels to pursue pirates. Having convinced King Felipe II of the necessity of fortifying Havana and occupying Florida, he brutally wiped out the colony of French Protestants at Matanzas and founded St Augustine in 1565 so as to protect the ships sailing through the Bahamas Channel. (Print after portrait/author's collection)

The king's engineers

From the 16th to early 18th centuries, engineers in Spain, as in other European countries were not 'men-at-arms' as such, but well-educated people who were recognized professionals in the art of construction. They might draft plans and supervise the construction of anything from a church to a large fort. They were a combination of the modern architect and engineer. In the 16th century, some of the most innovative 'military' engineers were Italians.

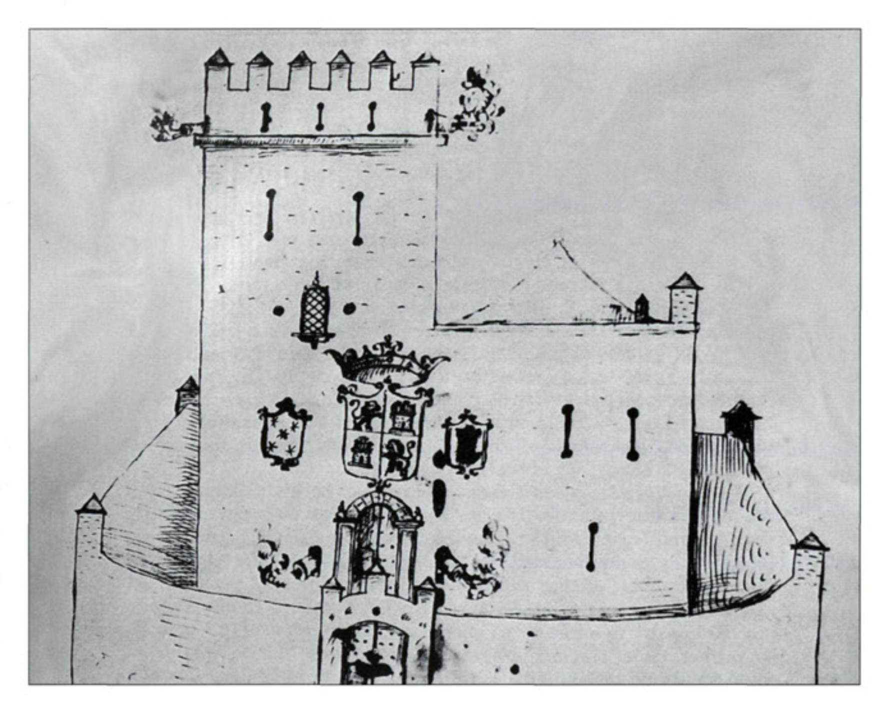
One such individual was Bautista Antonelli, born in Italy and a reputed military engineer. He is often confused with his older brother, Juan Bautista Antonelli, who was also a renowned military engineer in the service of Emperor Charles V and worked in Spain from 1559 until his death in 1588. His brother Bautista (often confusingly called Juan Bautista as well) entered the service of King Felipe II of Spain in 1570. He was first sent to America in 1581 to assess the possibility of fortifying the straits of Magellan to prevent enemy ships from entering the Pacific. This impractical scheme was not carried out. He travelled to America again in 1586 where he surveyed suitable fortification sites in the Spanish Main with General Juan de Tejada. An ambitious plan was drafted in 1587 and approved by the king the following year. Bautista Antonelli then returned to America and, for the next decade, prepared designs for forts and ramparts in many places. He returned to Spain in 1599 and died in Madrid in 1616. The designer of most of the major fortresses that were built in the Spanish Main,



Fort San Felipe at Puerto Plata, Santo Domingo (now the Dominican Republic). Built in the 1560s and situated at the harbour's entrance, it features a large round artillery tower that forms a substantial redoubt. This fort's design allied the features of a *casa fuerte* with thick-walled round artillery tower castles typical of the early 16th century. (Photo by Daniel Charles)

Bautista Antonelli was one of the most influential military engineers ever to have worked in America.

During the following decades, engineers – Spaniards but also some Walloons and Germans – continued to be dispatched from Spain to America. The accession of Louis XIV's grandson to the throne of Spain as King Felipe V in 1700 brought about a flurry of much-needed reforms to Spain's somewhat antiquated administration. The army was reorganized along French lines, and in 1711, engineers in Europe and overseas were grouped into the elite *Real Cuerpo de Engenieros*. Their work in the Spanish Main was always considerable. Following the fall of Havana in 1762, King Carlos III ordered his corps of engineers to ensure that the principal cities of the Spanish Main were next to impregnable, and asked them to reinforce many of the smaller forts as well. A few French engineers, such as Baltasar and Joseph Ricaud de Tirgalle in Cuba, were seconded to the Spanish corps in the Spanish Main under Brig. Gen. Silvestre Abarca, Col. Augustin Crame and Col. Tomas O'Daly. The massive works that they had built in Havana, San Juan in Puerto Rico and Cartagena de Indias still impress visitors and, most importantly, achieved their objective of making these places almost impossible to capture.



The 16th-century *casa fuerte* of Bonda built at Santa Marta (on the Caribbean coast of present-day Colombia). This sketch was enclosed in a 1572 report. It reveals the medieval influence in Castillian castle design apparent in the early Spanish fortifications in America. Cannons are at the top of the tower and at either side of its door. The coat of arms of Spain with, presumably, those of senior officials are above the door. (Print after a drawing in the Archivo General de Indias, series Panama 3)

Castles in America

On 12 October 1492, the three ships that had sailed from Spain under the command of Christopher Columbus reached an island, which was named San Salvador, in what is now the Bahamas. From there, Columbus sighted other islands in the Bahamas and eastern Cuba. Building fortifications was already in his mind as, on 5 November, he noted that the harbour he named 'Puerto del Mares' in Cuba was a good site for a fort. In early December, he was sailing along the northern coast of a land he named Hispaniola (now Haiti and the Dominican Republic). After some exploration that featured the discovery of some gold and the accidental wreck of the *Santa Maria*, his largest vessel, it was resolved to return to Spain. However, a party of 39 men was left on Hispaniola with instructions to trade as much gold as possible with the Indians until Columbus returned with reinforcements from Spain.

Before returning to Spain to report on his discoveries, Columbus ordered the construction, on 26 December 1492, of 'a turret and a fort, with great care, and a large ditch' around it. This fortification would be the secure haven for the men left behind on Hispaniola. As its construction started just after Christmas, it was named **La Navidad** in honour of the birth of Christ. It was the first European fortification to be built in what would become known as the Spanish

A view of Sir Francis Drake capturing Santo Domingo in December 1585. The city's walls and castle were built in the early 1500s and were distinctively medieval in style. This 1599 print (after Theodore de Bry) must have been taken from credible sources as it matches early plans in the Archivo General de Indias. The landward side was protected by a crenelated rampart punctuated with square turrets, similar to many which can still be seen in Spain and Portugal today. (Anne S.K. Brown Military Collection, Brown University, Providence, USA/author's collection)



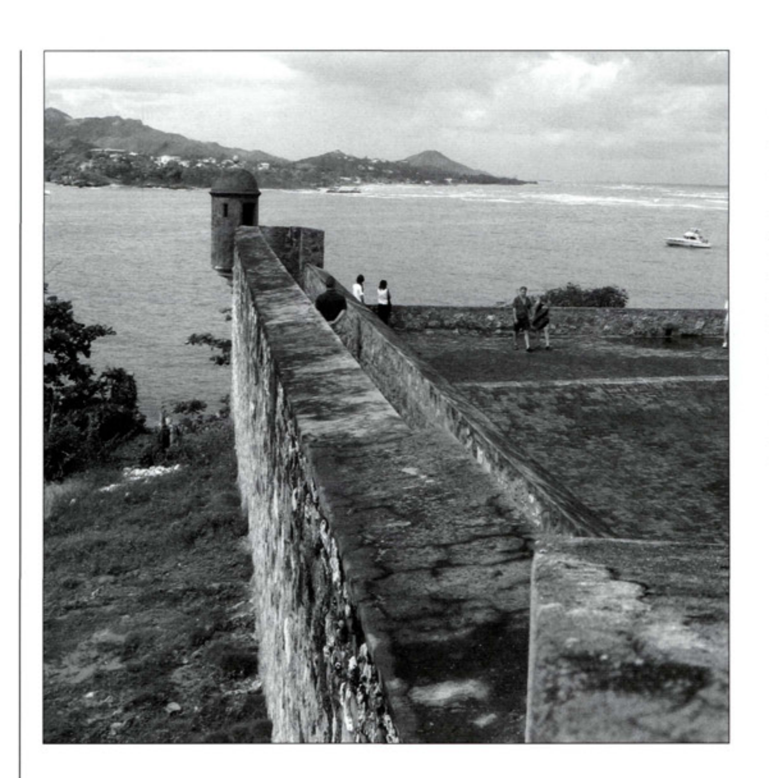


The English 46-gun galleon *Revenge*, launched in 1587 and captured by a Spanish squadron off the Azores on 31 August 1591. Sir Richard Grenville's flagship, the *Revenge* led an English squadron on an expedition to attack the weakly defended Spanish treasure galleons off the Azores. However, a larger Spanish fleet appeared to intercept the English ships. Grenville sailed the *Revenge* to engage the 22 Spanish warships in order to cover the escape of the other English ships. In the ensuing fight, the *Revenge* sank two Spanish ships before a mortally wounded Grenville finally surrendered during the night. Heroic as it may have been for the English, it also showed that, in spite of the defeat of the Great Armada three years earlier, the Spanish strategy devised by Menendez to protect the treasure fleet was essentially effective. (Print after Charles Dixon/author's collection)

Main. La Navidad was situated near the present-day Haitian town of Bord-de-Mer-de-Limonade, slightly inland. The fort's precise appearance is unknown, but it was built using the timber 'with which the whole fort will be built' and armed with artillery taken from the wrecked *Santa Maria*. Fort La Navidad had a tragic fate. When Columbus reappeared with 17 ships and 1,200 men on 28 November 1493, he fired bombards from his ships expecting the men left at La Navidad to answer 'because they also had bombards', but nothing was heard. The fort had been burned and the 39 occupants were never seen again.

Columbus and his fleet sailed east from 6 December until 1 January 1494 when it was decided to establish a settlement christened **La Isabela**, in honour of the queen of Spain, at the mouth of the Bajabonico River (near the village of El Castillo on the northern coast of the Dominican Republic). La Isabela was laid out by the sea on a rectangular plan. The modest 5.48m wide by 14.63m long residence of Columbus (by now viceroy and governor of the Indies and admiral of the Ocean Sea) was built of hard-packed earth coated with lime plaster and had a red tile roof. It had a small square turret, probably of stone, and was crenelated at the top. There was a circular wall around the house, which seems to indicate it was meant to act as a redoubt. There was also a church, a 34.44m long storehouse, and houses for the officers and the colonists. They were also made of packed earth covered with lime plaster, the storehouse having a tile roof and the other structures apparently covered with thatched roofs. A wall punctuated by a few small turrets enclosed the settlement.

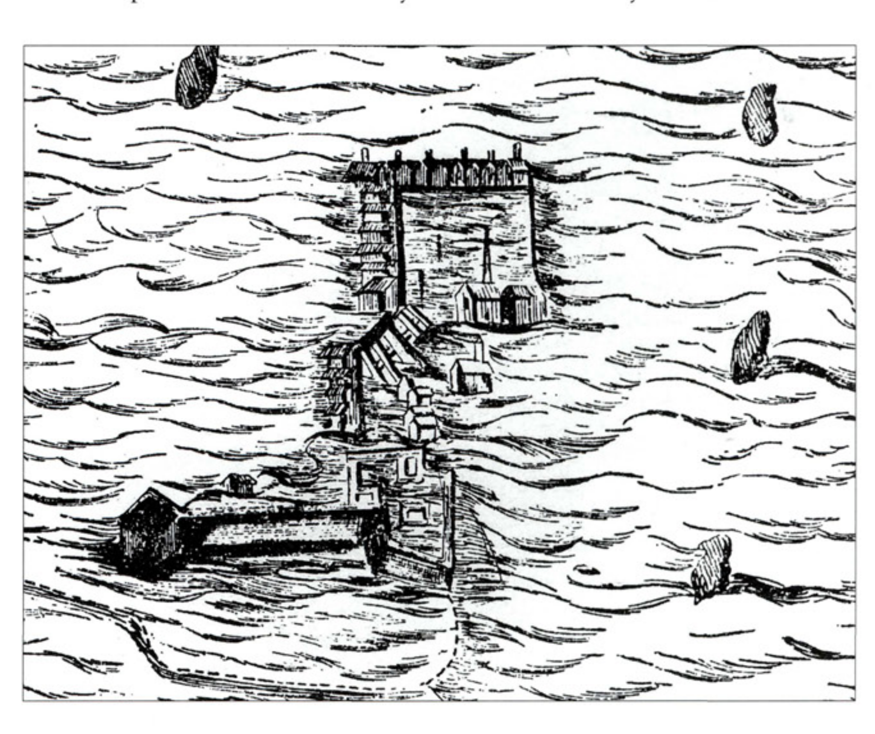
La Isabela was not to be the capital of the nascent Spanish empire in America for long. Within a few weeks, a third of the Spaniards had become ill and many had died. In February 1494, a rebellion of some of the colonists was put down and the ringleaders executed by Columbus. Misfortune continued over the



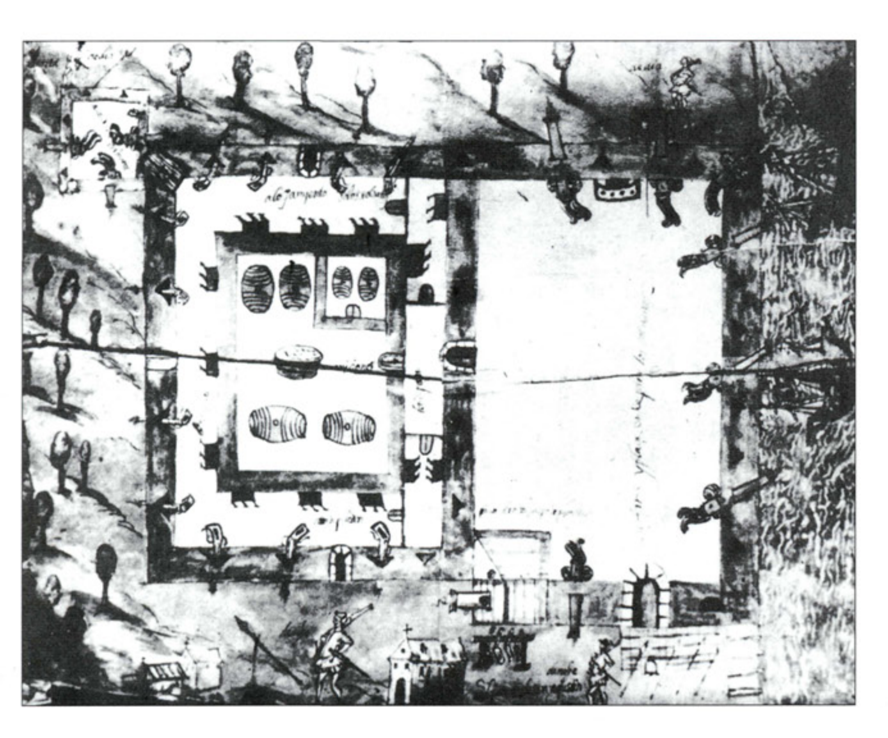
The walls of Fort San Felipe guarding the harbour at Puerto Plata on the island of Hispaniola (now the Dominican Republic). Begun in the 1560s, it is a good example of the smaller but nevertheless quite respectable forts the Spanish erected to protect smaller harbours. (Photo by Daniel Charles)

following years, with more deadly epidemics, a disastrous fire that destroyed two-thirds of the town's buildings, and a hurricane of such violence that it shattered several ships in the harbour. In 1496, some of the more able-bodied men at La Isabela were transferred to Nueva Isabela, soon renamed **Santo Domingo**, situated at the mouth of the River Ozama on the south coast of Hispaniola. This new settlement had a better harbour and was said to be closer to richer gold deposits. Initially on the east side of the river, the settlement of Santo Domingo was moved to the west side, which was more convenient for boats. By 1497, the remaining colonists at La Isabela were increasingly desperate. Close to starvation, they revolted and seized the storehouse and its stock of weapons. The last settlers abandoned La Isabela for Santo Domingo the following year.

Already worried that Indians, pirates and corsairs might attack the settlement, the governor of Hispaniola, Friar Nicolas de Ovando, ordered the building of a *fortaleza* made of stone to protect the town of Santo Domingo in 1502. Construction was slow and went on until 1508. The final structure was a medieval-style castle featuring the *Torre de Homenaje* (Tower of Homage) rising to some 18.5m. It was also known as the *Torre de la Vigia* (Tower of Vigilance), as it was used as a lookout. The tower was made of coral rock, which having the property of absorbing moisture, kept the interior of the structure cool. Its walls were built to a thickness of a metre and a half. According to Bartolomé de Las Casas' *History of the Indies* (begun 1527), the stone rampart that enclosed the city was built in the early 1500s.



The fort of San Juan de Ulua, according to a 1590s plate by Samuel de Champlain. Built on a low-lying island opposite the city of Veracruz, Mexico, the fort consisted at that time of a square tower (left) and a large half-bastion (right) connected by a double curtain wall, all works being mounted with artillery. Champlain, who spent a few weeks there in 1599, thought it was 'a very good fortress, as much as for its site as for its good ramparts, well equipped with all that is necessary, and has a garrison of 200 men, which is enough for this place.' He further mentioned that large bronze rings were set in the rampart for ships to tie up. The houses outside the fort were built on logs so as to avoid flooding. (Author's collection)



Plan of St Augustine, Florida, *c.*1593. This fort was one of a succession of nine wooden forts built there between 1565 and 1672. The one shown was probably constructed after Sir Francis Drake's 1585 raid. It featured heavy guns facing the sea (right) and lighter wall ordnance on the landward side. (Author's collection)

Puerto Rico was first settled by the Spanish in 1508. The early settlements, such as Caparra (which had a strong house with thick high walls surrounded by breastworks), were often attacked, first by Carib Indians and then by French pirates who sacked the town of San German in 1528. This raised much concern as Puerto Rico was the entry point of the West Indies. The other main settlement founded in 1519, **San Juan**, only had one fortification, the *Casa Blanca* (White House), a square strong house built in 1523. It was also the residence of the governor. While formidable to the Indians, it was entirely inadequate to resist a large force of European enemies. Instructions were given in 1529 to reinforce the defences and from 1533 to 1540 a *fortaleza* was built at San Juan. La Fortaleza, as it came to be known, consisted of a medieval-style castle with round towers built near the shore facing the bay of San Juan. It controlled access from the harbour to the town, but San Juan's harbour entrance was still unprotected. In 1539, the royal authorities approved the construction of another fort, a large square tower built against the rugged cliff with a circular gun battery at the water level that was called El Morro. Construction was very slow and was not finished until the 1580s, although its cannons appear to have been installed by the 1550s.

On the mainland, one of the first things Conquistador Hernan Cortez reported doing at **Veracruz** on Mexico's Caribbean coast, founded by the Spanish in 1519, was to build a fort. Two years later, in 1521, Cortez built a 'citadel' in **Mexico City** that must have been extensive. He mentioned to Emperor Charles V that, although he had seen many construction sites and citadels, none he had seen were its equal, and some of his companions who had seen even more citadels than he agreed. This citadel had, on the lakeside, 'two very strong towers with their embrasures and loopholes' connected by a construction forming three arches by which vessels could come in and out of the lake. Nearby was a great tower with many lodgings above and below, 'built for offence and defence'; thanks to this tower, he said, he could make war or peace as it protected 'the ships and the artillery'. What Cortez described to the emperor was obviously a very impressive medieval-style castle, no doubt built from the stones of the massive 'pagan' monuments that were torn down by the Spanish in Mexico City. In Yucatán, a *casa fuerte* was first built at **Cozumel** in 1526.

RIGHT **The first castles 1494–1502**

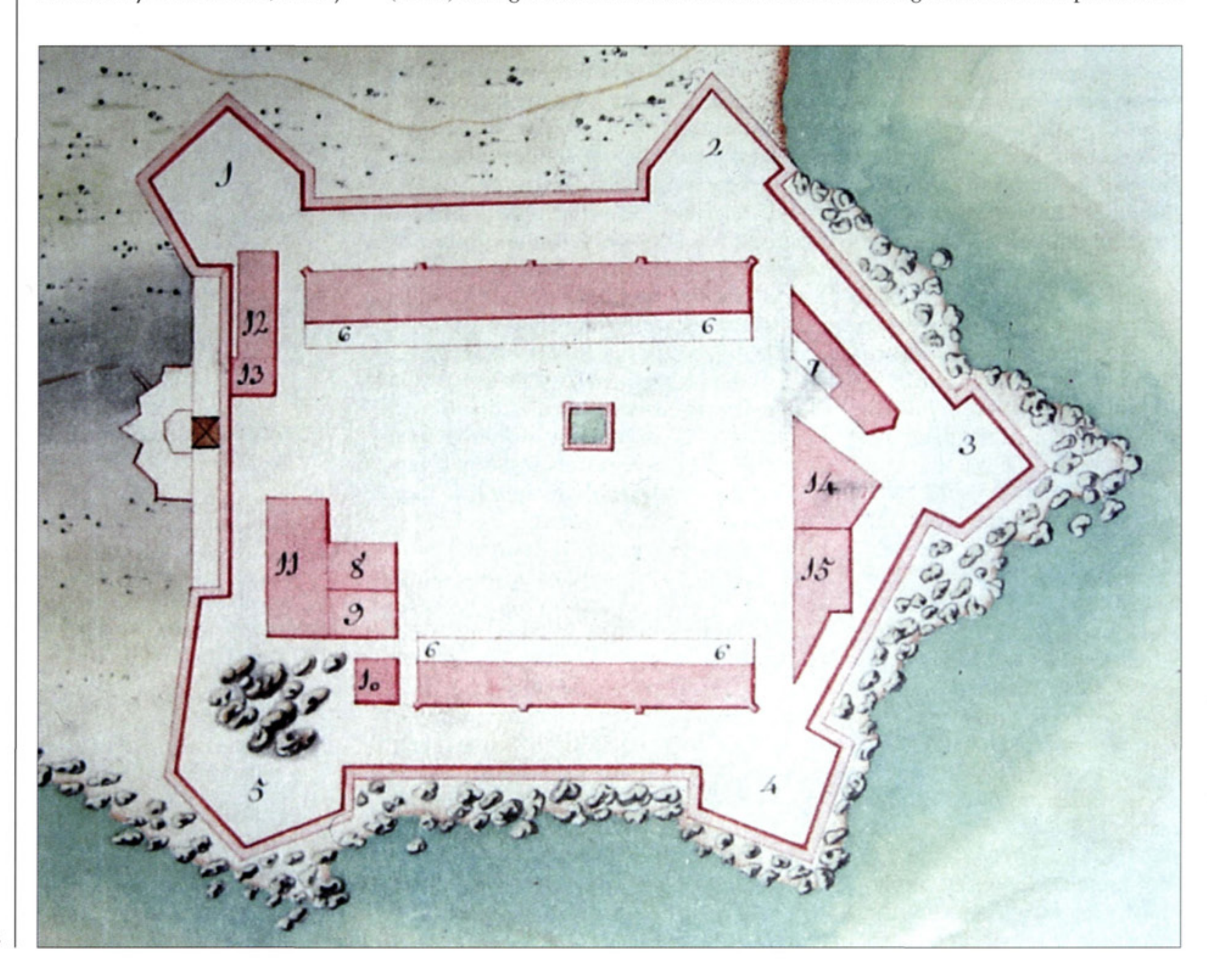
A The *casa fuerte* of Christopher Columbus at La Isabela, built in 1494. The house was 5.48m wide by 14.63m long and served as the stronghold of this early Spanish settlement. Long thought to have been made entirely of stone, recent archaeological excavations have revealed that the house's walls were in fact made of packed earth coated with thick lime plaster. The roof was covered with reddish tiles made at a nearby kiln. The house also featured a tower, probably made of stone, and was enclosed by a round stone wall. The whole settlement was also surrounded by a stone wall with small watch towers at intervals.

B The Torre de Homenaje (Tower of Homages) was ordered built at Santo Domingo in 1502 and finished in 1508. It was the first sizeable Medieval-style building to be erected in America. It featured a central tower built on a square plan, rising to a height of 18.5m and flanked by lower structures. It was made of coral rock, giving it a pinkish hue. Its walls were built to a thickness of a metre and a half.

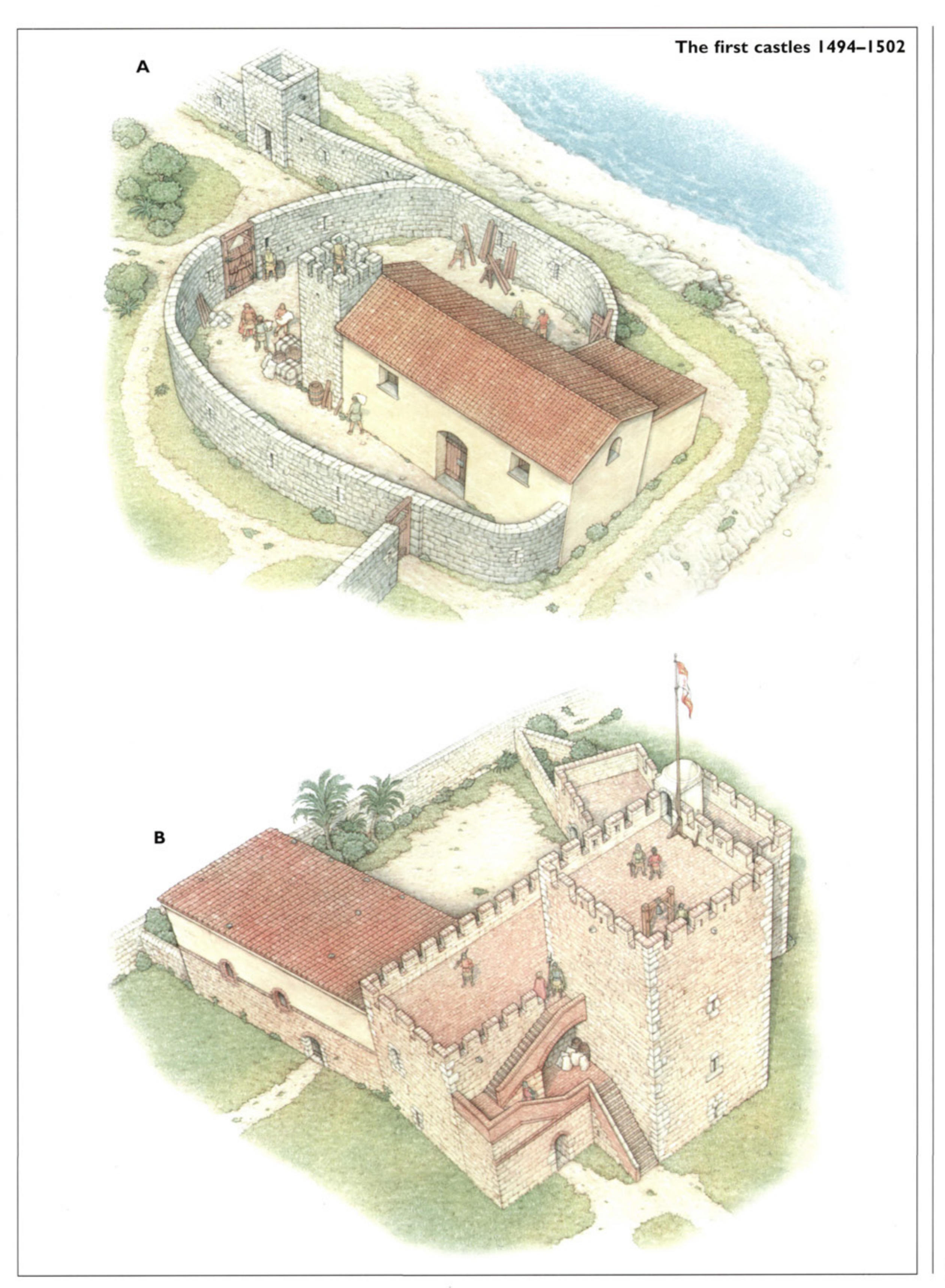
As settlements spread over the West Indian area, many a *casa fuerte* was built as soon as the Spanish arrived at various places: those at **Cumana** 1520, **Margarita Island** in 1525, and **Trinidad** in 1532 are just a few examples.

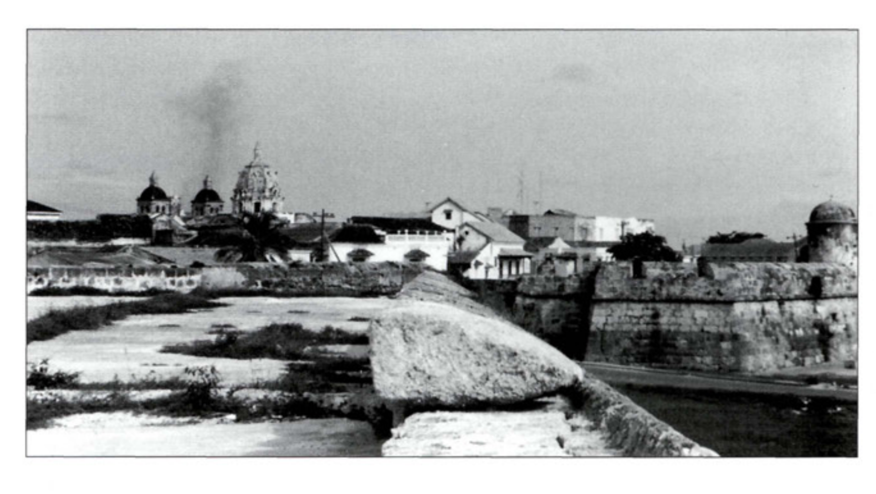
Town planning

From the very first decades of settlement in the Spanish Main, the layout of emerging towns was a concern. The Spanish generally used a grid design inspired by the Romans, featuring a central plaza that housed the main official and religious buildings. The early town of Santo Domingo is an example of this layout. In Spain, towns were chartered by the royal government as *ciudades* (cities) and granted their own coats of arms as recognition of their position as



Fort San Diego in Acapulco, Mexico, 1617–1776. This fort was built on the Pacific coast to protect the 'Manila Galleon', whose cargo would be carried overland to Veracruz to be embarked on the treasure fleet sailing to Havana and Spain. It was a respectable structure that would discourage isolated raiders, but such a fort was not likely to repulse a sizeable enemy squadron. (Instituto de Historia y Cultura Militar, Madrid)

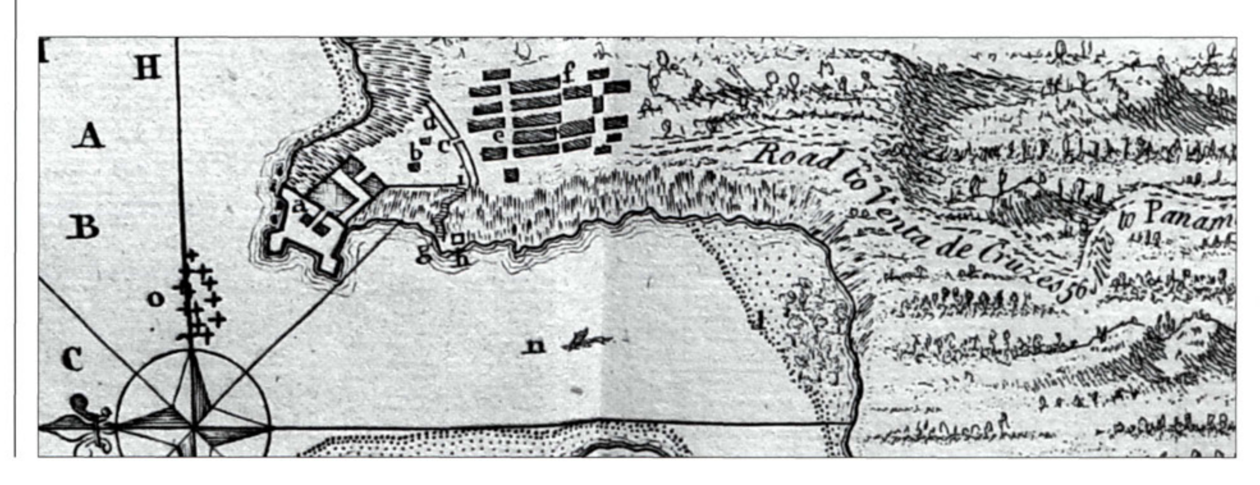

A
B



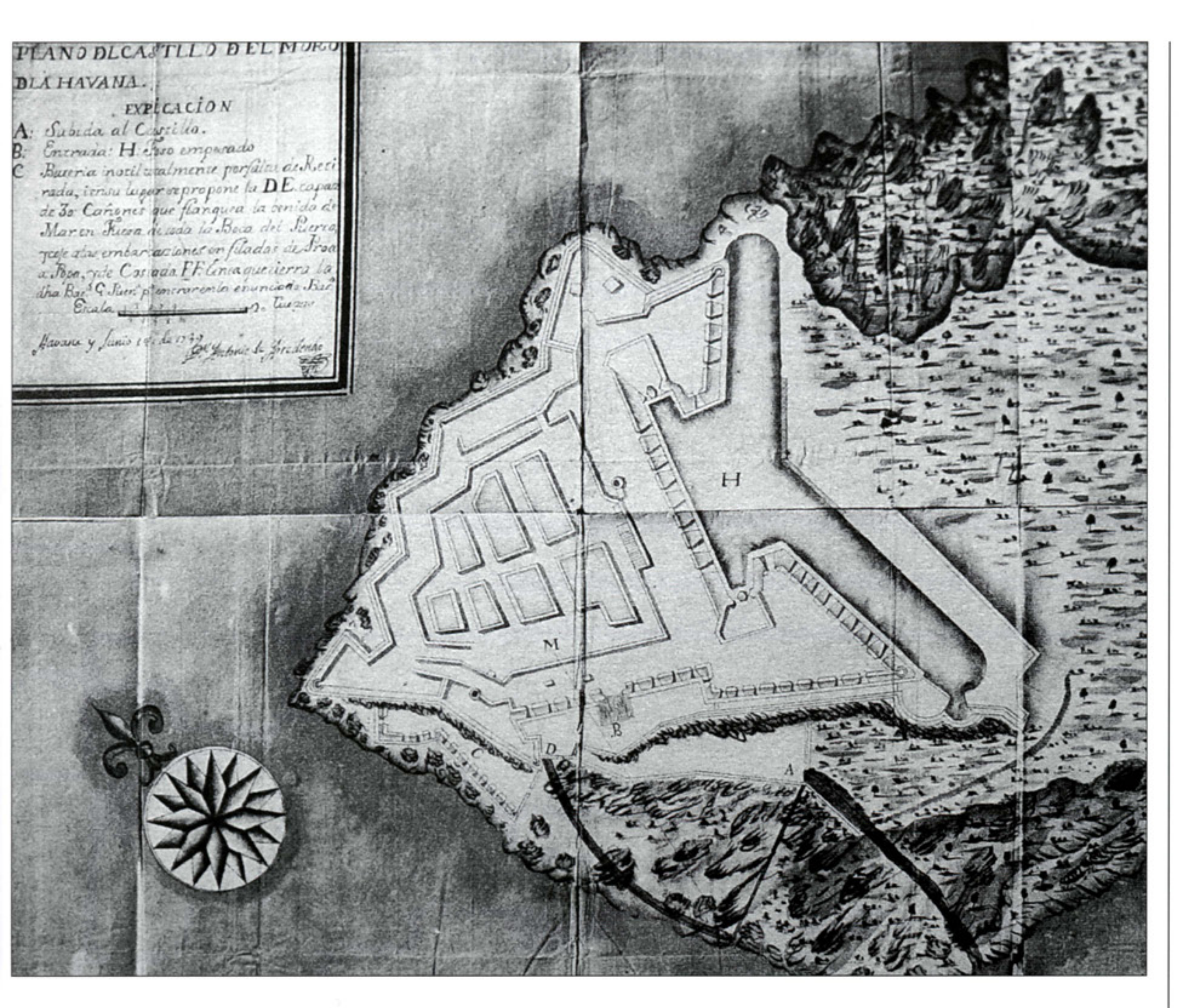
The ramparts of Cartagena de Indias, built during the 17th century. This photo, taken from the La Cruz battery, shows the Santo Domingo bastion, started in 1602, with its watchtower. These works guarded the city's north-western approaches facing the Atlantic Ocean. In the background can be seen the dome and towers of the cathedral and, to the right, the first hotels of the current beach resort area. (Author's photo)

a centre of local government. This tradition was extended to the settlements of the New World. An *adelantado* (leader) was authorized to found a city and, in the absence of a single leader, ten married men could found a town and organize its government. From 1523, the local government was the *ayuntamiento* with its *alcalde* (mayor) and its *regidores* (councillors) whose concerns were both civil and military. Viceroys, captain-generals and local governors had the ultimate military responsibilities pertaining to troops and the design of fortifications, but local governments would often be asked to contribute financially and provide labourers.

As the 16th century unfolded, it became clear that some towns had simply been built quickly with little planning, and the need for better guidelines became apparent. On 3 July 1573, a long royal regulation regarding the laying out of new towns gave detailed instructions on all the main aspects of town planning. The chosen town site was to be 'on an elevation; healthful; with means of fortifications; fertile and with plenty of land for farming and pasturage; fuel and timber; fresh water, a native population, commodiousness'. If a port city, care was to be taken 'if possible' not to 'be near lagoons or marshes in which poisonous animals and corruption of air and water breed'. The regulation went on to describe exactly which buildings should be in the plaza, and the angles and width of streets: those 'for purposes of defence and where horses are kept ... had better be wide'. Plazas were not only public spaces, but also had an important military purpose as areas for parades and drills. Defence was a prime concern in the city planning process, along with the notion of beauty to make the town a safe and pleasant place to live. Renaissance concepts in urban design were expressed in Bautista Antonelli's



Plan of Fort San Lorenzo de Chagres at the entrance of the Chagres River on the Caribbean. The city of Panama is 132km to the west and Portobello 72km south. Started in 1595, the fort was made mostly of wood and earth and was partly destroyed in the 1671 attack by Morgan's pirates. The second fort is shown in this print. It was built of stone in 1680, generally on the same plan as the previous fort. It featured: a) the 'castle' with its lower battery and bastions covering the river's entrance, b) the powder magazine up the hill, c) a draw-bridge, d) a moat 9m deep, e) the town of Chagres, and f) the church. This fort was blown up following its capture by Admiral Vernon in 1739. It was later rebuilt on a somewhat different plan. (From the *Gentlemen's Magazine*, 1740/author's collection)



plans for Veracruz in 1590, which called for a very regular grid of city streets and blocks, with a central plaza and secondary public squares. Such concentration made fortifications easier to build. To this day, towns in Latin America still use this design.

Plan of Morro Castle in Havana. The construction of this large fort, officially named *Castillo de los Tres Reyes del Morro*, began in 1589 under the direction of Bautista Antonelli and was completed in 1630. Plans of 1591 and 1612 are essentially the same as this 1739 plan. The fortifications covered the point to the sea almost entirely, making an assault from this side extremely difficult and hazardous. There was also an outside shore battery just below the fort (marked 'C'). The fort's landward eastern side featured two large bastions connected by a curtain wall mounted with artillery and a large ditch in front. Access into Morro Castle was through a small gate on its south side ('B'). This fort was essentially the same 23 years later when the British attacked. (Author's collection)

Corsairs, pirates and convoys

As early as 1506, French corsairs attacked Spanish ships from Santo Domingo, but the booty consisted mainly of timber, tanned hides and some sugar. Then, in 1523, a small fleet of French corsairs from Dieppe led by Jean de Fleury captured some Spanish ships off the Azores. Their incredible cargo astonished the corsairs. The ships' holds contained part of the loot taken by Cortez in Mexico intended as gifts for Emperor Carlos V: great numbers of exquisite gold ornaments, fine jewellery, and beautiful feathered cloaks and headdresses that had been in the palace of the Aztec emperor. Cortez was sending these to his emperor to show him the great wealth of his conquest. He certainly succeeded in publicising the available riches. Before the capture of these ships, nothing was factually known in the rest of Europe about the fabulous booty taken by the Spanish in America. Now, a small part of a treasure of astonishing and unheard-of value arrived in France for all to see. This news spread like wildfire: the fabulous wealth of the Spanish 'Indies' was soon the envy of all Europe.

In spite of this, the depredations by corsairs and pirates were relatively minimal during the following decade. However, by the 1530s, individual French privateers lurking in the Bahamas were bringing back rich prizes in silver and gold. Seeing this, Jean d'Ango of Dieppe gathered a fleet of French corsairs that descended on the largely unfortified Spanish Main in 1537. Small coastal settlements on Hispaniola and Cuba were plundered, and many ships were taken. The only bright spot for the Spanish was that the French corsairs' attacks on Santiago de Cuba and San Juan, Puerto Rico, were beaten back. In 1545 French corsairs took several towns, including Santa Marta on the South American coast. Eight years later, a French fleet that included Royal Navy warships, devastated



The Spanish capture of the Dutch island of St Martin's by Admiral Juan Fadrique de Toledo in 1629. St Kitts and Nevis were also captured. The Dutch and English reoccupied their islands once the Spanish had left. The Spanish often successfully countered incursions from pirates and enemy nations, but remained too weak to prevent the French, Dutch and British from settling the smaller islands. This contemporary painting by Eugenio Caxes gives an idea of the appearance and arms of Spanish soldiers in the West Indies in the early 17th century. Troops wore neither uniforms nor standard equipment at that time, but most are shown with a red or crimson sash, the recognition badge of Spanish troops. (Museo del Prado, Madrid/author's collection)

Spanish fortifications in the Caribbean, and the routes of the Spanish treasure fleet

small settlements on the coast of Puerto Rico and Hispaniola, and took Santiago de Cuba in 1554 and Havana the following year. None of these towns had much in the way of fortifications. With the end of wars between France and Spain in Europe from 1559, the corsairs' attacks abated.

According to the Defence Plan of 1588 for the Spanish Main, substantial forts were to be built at the main ports used by the treasure fleet. Extensive fortifications were built at Havana, San Juan (Puerto Rico), Cartagena and Veracruz but, eventually, forts were built at all the locations shown during the 16th and 17th centuries, many undergoing considerable expansion in the 18th century. Although the Spanish settlement effort was considerable, western Hispaniola (later Haiti), the Bahamas, Belize and the smaller Caribbean islands were settled by the French, British and Dutch in the 17th century.



View of Santo Domingo, Hispaniola, in the 17th century. The fortifications of the city remained basically the same as in the 16th century with some notable improvements. A substantial moat was built outside the city's medieval-style western wall and batteries were added elsewhere. (Author's collection)

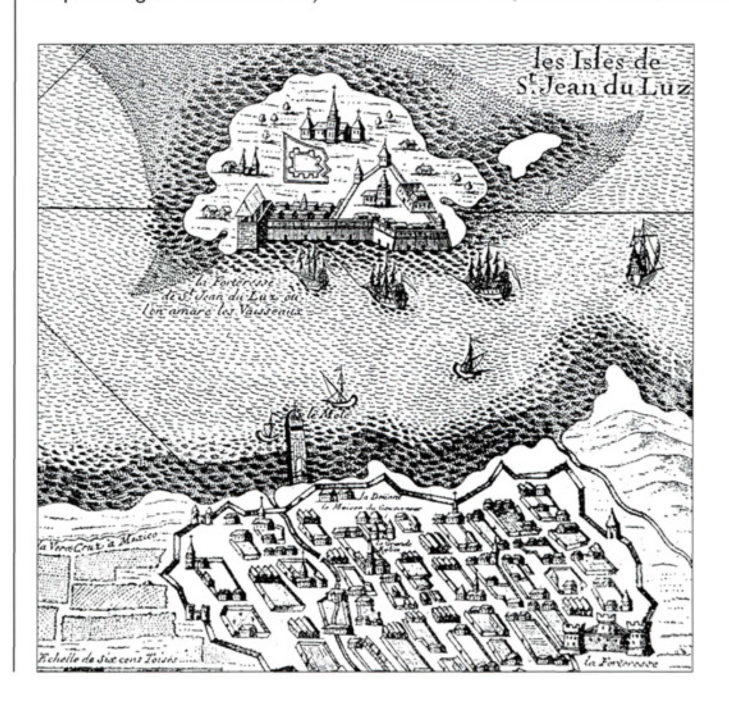
Dutch and English ships were also coming into the area to smuggle goods in and out. The Spanish government had promulgated strict rules to the effect that all trade from the Spanish Main had to be solely by Spanish ships. However, what was brought out from Spain was not enough for many settlers who wanted to trade with foreign ships. The authorities might catch and seize some of those foreign ships and deal harshly with their crews while settlers would plead that the traders had forced their way into the harbours – a rather moot point. With greed added to revenge, some of the foreign sailors turned to attacking Spaniards anywhere and at any time – in effect they became pirates.

The treasure fleet convoy system

As their treasure ships were increasingly threatened by corsairs and pirates, the Spaniards devised a convoy system to try to protect the fleets. This started in 1543 when the war with France began again. Ships from the American mainland carrying the gold and silver assembled at Havana to form convoys that sailed twice a year, in March and September, each fleet protected by at least one man-of-war. There were many variations to these instructions during the next two decades. The early fleet arrangements needed to be strengthened and, in 1555, fleet commander Pedro Menendez de Aviles first escorted the treasure fleet with six warships. No corsairs or pirates dared attack such a force and this escort system was obviously a good solution. In 1562 Menendez escorted a treasure fleet of some 49 ships, the largest number that had ever sailed for Spain. The system clearly worked and, in 1564–65, Menendez' plans became the basis for royal regulations that gave the treasure fleet convoys an organization that was retained for the next two centuries.

In October 1564 a royal order stipulated two annual treasure fleets be sent together from Sevilla, Spain, in May. The prevailing winds and currents brought the fleets into the Caribbean from the south and the first major port reached was San Juan, on the island of Puerto Rico. From there, each would go to its respective destination. One fleet, called the 'Fleet of New Spain', would take on the cargo of gold, silver and other goods at Veracruz, Mexico. The treasure taken on board there also included goods from Honduras and other islands, as well as items from the Far East and China carried by the 'Manila Galleon'. (These crossed the Pacific from the Philippine islands to Acapulco on Mexico's west coast and were then carried overland to Veracruz.) The other fleet, the Tierra Firme (mainland), went to Nombre de Dios (later to Portobello) on the Atlantic coast of the isthmus of Panama. There it received treasure sent from Peru to Panama City that had been carried overland across the isthmus. That fleet would then take on more cargo at Cartagena de Indias and other places. Both fleets were to winter in the Indies and then assemble at Havana in March. They would then sail north across the Bahamas Channel following the Gulf Stream and go on to Spain.

In practice there were many variations regarding the periods of sailing, and both fleets usually sailed separately. Both were under independent command, even when they sailed together. Further regulations of 1565 and 1566 defined their armament. Until then, a few heavily armed transport galleons bearing artillery and soldiers accompanied the fleets, but this was not sufficient to prevail against corsairs. From 1565 the flagship was at least



Plan of Veracruz, Mexico, in the 1670s. The city was walled from the 1630s. The citadel of San Juan de Ulua was situated on an island facing the city's harbour. In spite of such defences, the city fell to French corsairs in 1683. (Plan after John Esquemeling/author's collection)

300 tons, carried no treasure cargo, and was armed with at least eight guns and 200 soldiers. The following year, the admiral's galleon came under the same regulations.

Further protection was given by squadrons of six to eight galleons, called the Carrera fleet, that cruised the areas of the Canary and the Azores islands as early as the 1520s. In time, these galleons escorted the Tierra Firme fleet all the way to Nombre de Dios (and later Portobello) so that in the 17th century, that fleet came to be known as the 'Galleons'. The number of galleons armed for escort was later raised to 12, and then to 16 in 1633 although this varied in practice. The number of transport ships also varied.

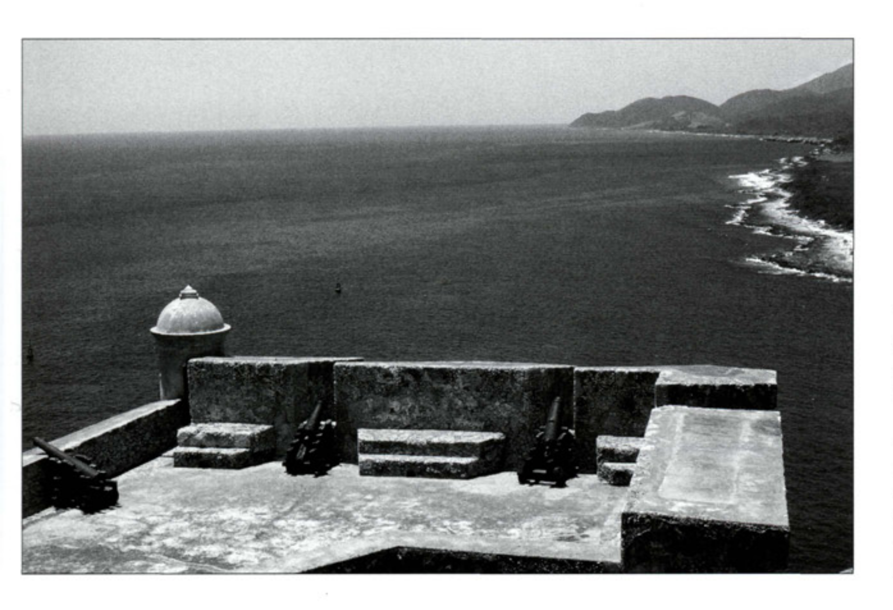
Defence naval squadrons

It was soon realized that forming convoys and escorting the treasure fleets would not overcome the pirates. The heavy ships of the Carrera fleet were too ponderous and slow to catch the pirates' fast-moving vessels. In the late 1570s Mediterranean-style oared galleys and lateen-rigged pinnaces or sloops were brought into service in the Caribbean. These light-draught ships were much more efficient for chasing pirates. In 1578 two galleys and a sloop were based at Cartagena de Indias and in the 1580s, there were two galleys in Hispaniola and two in the area of Panama (or *Tierra Firme*). These squadrons came to be known as the *Armadas de Borlavento* (Windward Squadrons).

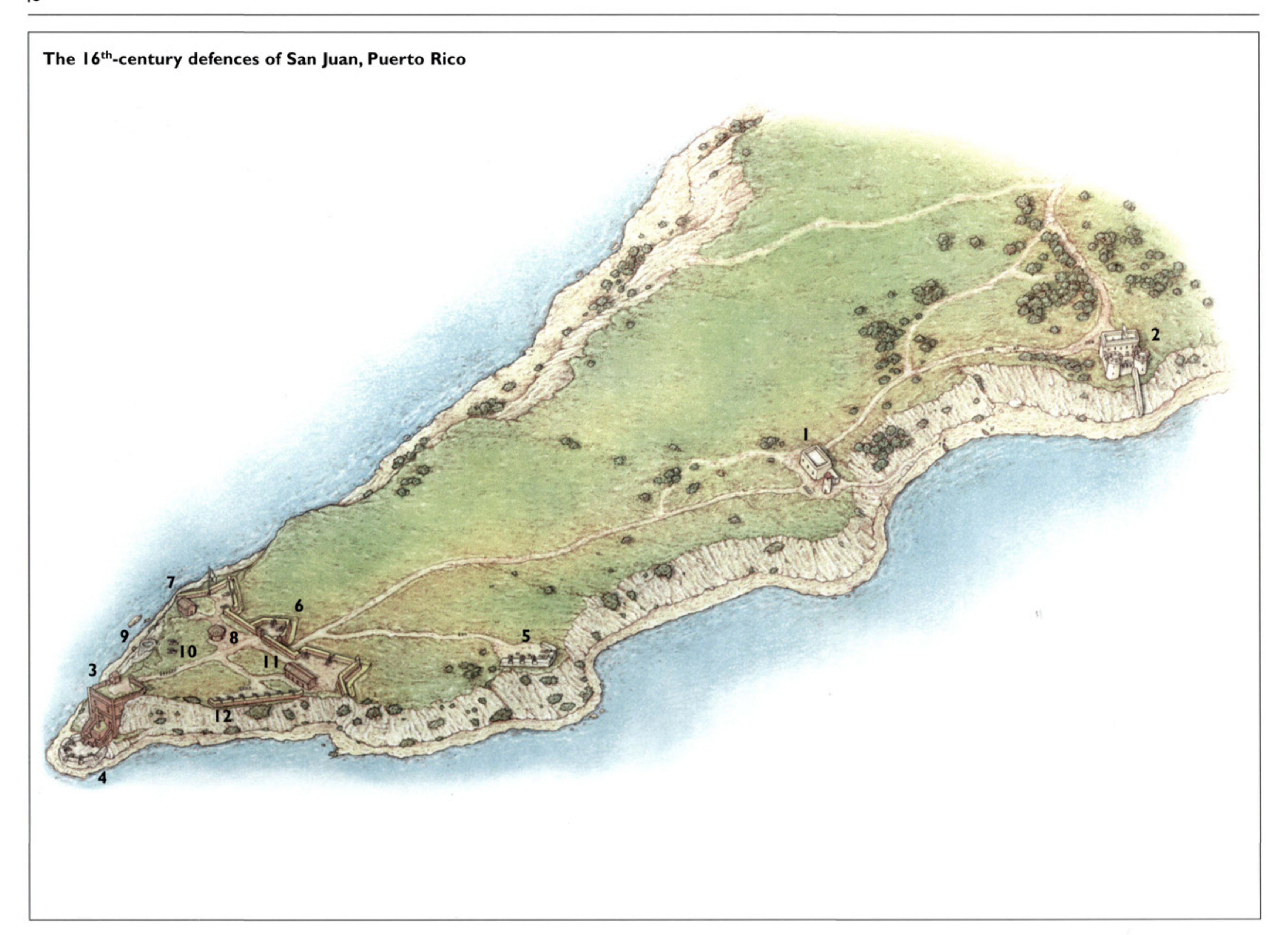
By the early 17th century, Spain's decline as a world power led to the decline of these squadrons. From the late 16th century to the last third of the 18th century, Spanish naval power amongst nations slid from a strong first place to a weakened third behind Britain and France. Naval strategy therefore hinged on having ships-of-the-line that were large floating fortresses to escort the treasure fleets. It did not matter much if they did not sail very fast. The important thing was that they could stand up to almost any enemy. And, on the whole, this strategy worked remarkably well from the middle of the 16th century to the early 19th century. The treasure was escorted safely, but it left the Spanish Main with sparse protection against pirates and enemy nations.

French Huguenot plans

French naval adventurers of all persuasions were the main threat to the early treasure ships and settlements of the Spanish Main. By the middle of the 16th century, France was increasingly divided between Roman Catholics and the powerful Protestant Huguenots. At that time, Gaspard de Coligny was Grand



The fort of San Pedro de la Roca at Santiago, Cuba. Designed by Antonelli, its construction began in 1590 and it was expanded from 1638 with many improvements made over the next two centuries. Its guns overlooked the entrance of the bay leading to the city, and by the 18th century it was considered one of the strongest forts in Cuba. (Photo by Jean Belisle)



The 16th-century defences of San Juan, Puerto Rico

LEFT **The 16th-century defences of San Juan, Puerto Rico**

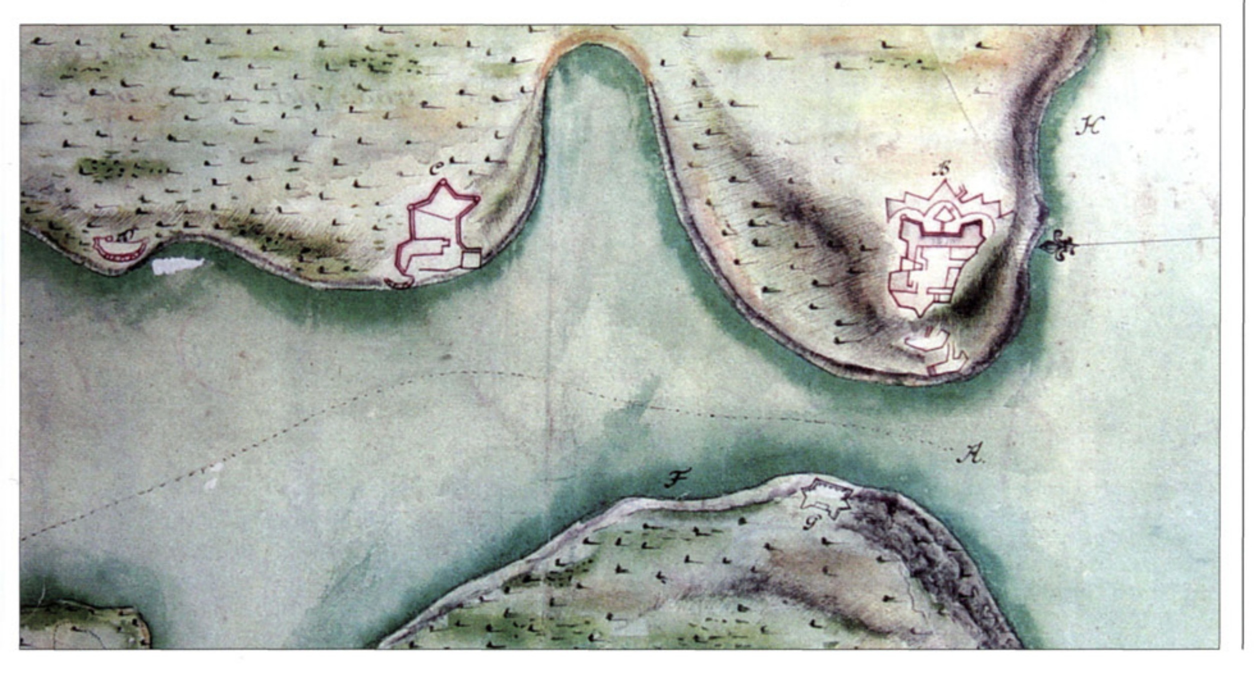
1 – The Casa Blanca (White House) built *c.*1523.
2 – La Fortaleza built *c.*1539–40.
3 – The tower of El Morro built *c.*1539–40.
4 – The water battery built *c.*1539–40.
5 – The Santa Elena battery built *c.*1586.
6 – The Hornwork built in 1589. It included two half-bastions, a ravelin and a moat.
7 – Magazine.
8 – Guard house.
9 – Water cistern.
10 – Battery facing the sea.
11 – Food and munitions magazine.
12 – Battery facing the harbour entrance.

Admiral of France and the most influential Protestant at the court of Henri II. In 1559 he seems to have been at the root of a grand plan for a naval assault on the Spanish Main. A powerful French fleet would attack and sack Puerto Rico, Santo Domingo and Nombre de Dios, and 1,200 men would march across the isthmus to Panama and seize Peruvian treasure. On the way back, the French fleet would attack the treasure fleet coming out of Veracruz, take Havana and destroy the new fortifications being built there, and return home via the Bahamas Channel.

While this French proposal was never actually carried out (probably because a peace treaty was signed in 1559 ending a quarrel of some 60 years), it revealed a radical change: the challenges to the Spanish Main were progressing from individual looting expeditions to concerted strategic plans mooted by cabinet ministers of Spain's naval enemies. Henceforth, such plans would have the tacit approval, and discreet support, from the highest authorities in France and, eventually, England and Holland.

For their part, some French Huguenots were eager to settle in America and they had plans for colonies in Brazil and in North America. In 1562–63, the small French Huguenot colony of Charles-Fort had been settled on present-day Parris Island, South Carolina (which has since become famous as the training base of the United States Marine Corps), but it failed the following year. In 1564, a large party of French Huguenots under the leadership of René de Laudonnière landed on northern Florida's east coast and built the fortified settlement of Fort Caroline, 8km from the mouth of the St Johns River. It was a direct threat to the Spanish treasure fleet convoy system coming through the Bahamas Channel.

The eastern side of Santiago de Cuba's narrow harbour entrance was guarded by several forts and batteries (top), as shown in this detail of a 1726 plan. The largest fort was the Castillo de San Pedro de la Roca (B), whose construction started in 1590. Further inland was the fort of Estrella (C) and still further back, the battery at Santa Catalina (D). More batteries were eventually built on the opposite (western) side of the entrance. The city itself is situated further inland at the end of the bay. (Instituto de Historia y Cultura Militar, Madrid)



The Castillo San Felipe de Barajas was Cartagena de Indias' citadel facing the eastern lands. It was constructed from 1647 on the hill of San Lazaro, which dominated the city from the landward side. It remained a relatively small fort with few changes for over a century. After the fall of Havana in 1762, the Spanish feared that Cartagena would be attacked next. Work immediately started to strengthen the whole hill with extra batteries that were in place by 1763. It was also included in the fortification upgrade programme of the 1760s. From 1769 to 1798, its defences were improved greatly so that the whole hill became a formidable citadel. (Author's photo)



On the Spanish side, Pedro Menendez de Aviles had already proposed that a fortified post should be established in Florida to prevent pirates and enemy corsairs establishing bases there to attack Spain's treasure fleets. Now, news came of the French settlement. Not only was it a strategic threat to the fleet, but the settlers were Protestants, which posed a religious affront to the devoutly Catholic Spanish king. Felipe II immediately ordered a powerful expedition sent to Florida under Captain-General Menendez to drive out the French and settle Florida. In late August 1565, the Spanish fleet arrived in the area just as French Huguenot ships led by Jean de Ribaud also arrived with reinforcements for Fort Caroline. A Spanish attempt to board them was unsuccessful and Menendez went further south to establish a base. The place chosen was named St Augustine (San Augustin). Jean de Ribaud set out to attack the Spaniards but, just off St Augustine, his fleet was struck by a hurricane and wrecked far down the coast. Menendez seized on the opportunity and marched his troops to Fort Caroline, whose weak garrison could not resist the Spanish assault. It was renamed Fort San Mateo. Hearing that two groups of French Huguenot survivors from the wrecked ships were marching up the coast toward St Augustine, Menendez headed to meet them and, on 29 September at Matanzas, in a cruel act that stains his legacy, had the Protestant men massacred on the spot. About 75 women and children were spared and shipped to Europe. (Three years later, an expedition of vengeful French Huguenot freebooters took and razed Fort San Mateo and hung the Spanish survivors.)

In April 1566, Menendez sailed north and established Fort Santa Elena on Parris Island, South Carolina, in the area of the French Protestants' failed Charles-Fort. Fort Santa Elena was planned to be an important post and initially alternated with St Augustine as the capital of Spanish Florida. The first Fort Santa Elena accidentally burned in 1570 and a second fort bearing the same name was immediately built. Its site, archaeologically surveyed on Parris Island during the late 1970s, revealed that it consisted of a two-bastioned earth and timber fort of more than 61m wide from the outer edges of the bastions and surrounded by a 4.2m wide ditch. It also had an outer wooden stockade. It protected a settlement of about 60 houses, the home of some 400 people in the 1570s.

English attacks on the Spanish Main

From the middle of the 16th century, English adventurers became increasingly numerous. The involvement of the English began in earnest during 1568–69 when Sir John Hawkins took six vessels to the Spanish Main intending to trade, in defiance of Spain's monopoly. He called on Santa Marta and Cartagena de Indias whose governor and inhabitants felt compelled to 'trade' after a

persuasive English bombardment. Hawkins later put in for repairs at Veracruz, where he received a cool reception. His men overcame the Spanish garrison of the fort of San Juan de Ulua but, a few days later, the Spanish treasure fleet arrived. Its admiral, Francisco Lujan, promised he would let the English leave peacefully, but on 23 September 1569, launched a surprise attack on Hawkins and his men. About 100 Englishmen were lost, a third of their force, but Hawkins managed to escape with most of his men on two ships. One of the captains who escaped was the young Francis Drake.

It was, at first sight, a resounding success for the Spanish. However, Admiral Lujan's action was seen as nothing short of treachery by all Englishmen and, indeed, his devious attack was destined to have dire consequences for the Spanish Main. All English sailors and adventurers lured by the wealth of the Spanish Indies now had the excuse of revenge, as well as the aim of enriching themselves in the process. By the late 1560s, the news of the massacre of French Protestants in Florida by Menendez de Aviles had reached France and England. Already, tales of unspeakable cruelty by the Spanish settlers on the Indians had made their way all over Europe thanks to the translations of Father Bartolome de las Casas' writings, which condemned such acts. Now came news of the fate of Hawkins' men at Veracruz that confirmed, especially in Protestant minds, the basic ruthlessness of Spaniards and that no quarter could be expected from them.

The fact that there were, and would continue to be, countless acts of mercy by Spaniards towards foreigners went (and still goes) largely unnoticed. Bartolome de las Casas was himself a Spaniard, and his actions were an important factor in prohibiting the slavery of Indians in Spanish America. To other Europeans, the justly intolerable acts of having put defenceless fellow Christians (be they Protestants) to the sword was the fact retained in public opinion. Thus was the 'Black Legend' of Spanish cruelty in America born. Many an adventurer felt he had scores to settle.

One such adventurer was Captain Francis Drake, who returned to America in 1570 determined to make the Spanish pay for the action that had claimed so many of his shipmates in Veracruz. In 1572, he seized a fortune at Nombre de Dios and, in 1573, came close to intercepting the treasure from Peru while it was being moved overland from Panama City to the Atlantic coast. In the later 1570s, Drake went around Cape Horn and raided the Spanish ports on the Pacific coast.



Plan of Panama City, 1688. Engineer Antonio Mercado de Villacorta drew this plan only two years after the ramparts around the city's new site were completed. The town's military area was in the peninsula (upper left), which housed a battery and the infantry barracks. (Archives of Panama, Panama City/author's collection)



A group of Spanish soldiers in full dress during the 1680s. Contemporary descriptions of ceremonies such as the arrival of a new viceroy related the soldier's best dress, which would have been much the same as those shown here. Uniforms do not appear to have been generally worn by Spanish troops in Europe until the later part of the 17th century and were not worn in the Spanish Main until the early 18th century. There was, nevertheless, a degree of uniformity as the troops were distinguished by red sashes and, usually, red feathers in their hats. Detail from a 1683 painting of an *Auto de Fe* in Madrid. (Museo del Prado, Madrid/author's collection)

In 1585, when England allied itself with the Dutch, who were in full revolt against their Spanish overlords in Flanders, Drake sailed for the Spanish Main with a fleet of 25 ships bearing 2,300 men with instructions from Queen Elizabeth I to 'singe the king of Spain's beard'. After taking Santiago in the Cape Verde Islands (Portugal had been annexed to Spain in 1580), Drake's fleet arrived at the rich city, Santo Domingo in Hispaniola. Landing his men, the place was bombarded, stormed and taken on 31 December 1585. In late January 1586, Drake's fleet appeared at Cartagena de Indias and that city was also taken. Besides being occupied by the English, both cities of Cartagena de Indias and Santo Domingo were required to pay a ransom in return for not being razed to the ground. Many a wealthy resident must have regretted not spending the money on fortifications.

On the way back to England, Drake also took St Augustine, in Florida, razing its fort 'built all of timber, the walles being ... trees set upright' (Thomas Cate's account) to the ground in May. As a result, Fort Santa Elena (Parris Island, South Carolina) was deemed too isolated to defend against possible attacks by English corsairs such as Drake. In 1587, its 150-man garrison and colonists were moved to St Augustine, the fort dismantled and the place abandoned. In the event, the Spanish regrouped their forces at St Augustine and constructed another timber and earth fort.

King Felipe II cannot have been pleased as dispatches outlining the disasters in the Spanish Main arrived at his palace of El Escorial, north of Madrid. Not only were the financial losses substantial, but the Spanish colonists were also clamouring for protection. Over the years, almost every important colonial town had been taken or ransomed by 'pirates'. This simply had to stop.



The Castillo San Marcos at St Augustine, Florida, as seen from the south. The fort's exterior remains essentially as built from 1672 to 1695. The fort's gate, although invisible, is on this side and is protected by a large ravelin. On the left is the San Pedro bastion and on the right is the San Augustin bastion. (Photo by Stephen Wood)

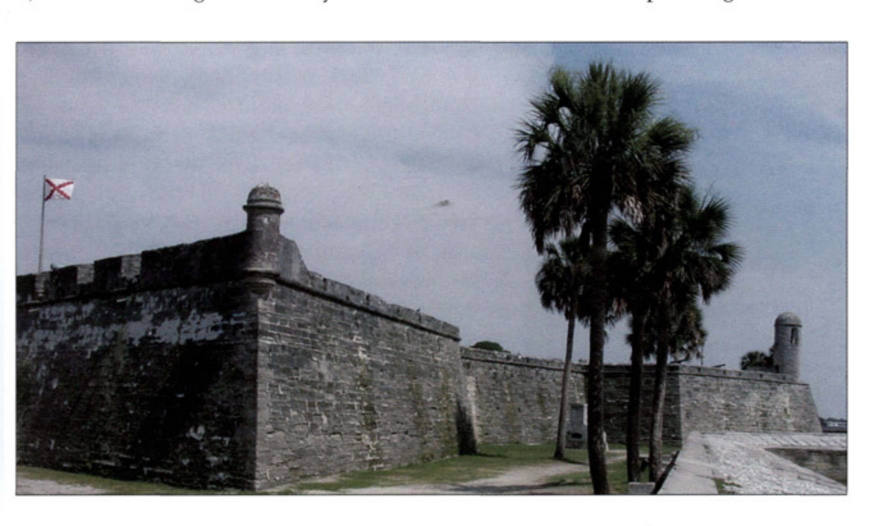
The fortification plan of 1588

The depredations in the Indies reached a peak when sizeable fleets, such as those led by Drake – a hero in his native England and the most despicable of pirates to any Spaniard – inflicted serious damages on the main colonial towns. Not only were the ships bearing treasure unsafe unless they sailed in the convoys established in the mid-1560s, but the very ports they sailed from were now extremely vulnerable.

It was obvious that the existing land defences in America had become inadequate. Indeed, many settlements had no permanent fortifications made of masonry. The larger towns that did have fortifications, such as Santo Domingo, were finding their medieval castles increasingly ineffective against well-organized enemy fleets and many hundreds of sailors and men-at-arms suitably provided with modern arms and warlike stores. A bastioned stone fort had been built at Havana during the 1550s but this was an isolated effort. Some key places, such as San Juan or Cartagena de Indias, had very poor defences relative to their importance regarding the treasure fleet convoy system. Many other places such as St Augustine had timber and earth forts that might be able to repulse Indian attacks or a small band of pirates, but were no match for major fleets like those of Drake or Hawkins.

It became clear to Spain's senior officials and soldiers that there was no strategic view regarding the defence of the Spanish Main and therefore no overall system of fortifications. Forts were built piecemeal here and there in various ways, and they might or might not have proper garrisons. This confused state of affairs favoured enemy raiders, and allowed an increasing number of attacks on Spanish settlements that were received with growing alarm by the Council of the Indies and the royal court. Clearly, an overall systematic approach to the defence of the Spanish Main was needed urgently to counter the depredations caused by the daring enemy raiders.

During 1586, King Felipe II ordered General Juan de Tejada, a distinguished and battle-hardened veteran soldier, and Bautista Antonelli, the renowned Italian military engineer, to leave for America, inspect its major port cities and come up with a strategic plan that would address the two main issues at hand: a) to greatly improve the protection of the settlements in the Caribbean, and b) to ensure the greater safety of the treasure fleets. After spending the better



The east side facing the sea of Castillo San Marcos at St Augustine, Florida. The nearest bastion, seen at centre left, is the San Augustin bastion. Note the tall watch 'bell tower' on the north-eastern San Carlos bastion. The structure at the centre (behind the palm trees) is a red-hot shot furnace built by the US Artillery in 1842–44. (Photo by Stephen Wood)

part of a year roaming about the Spanish Main, they were back in Spain in September 1587 to draft up their conclusions.

Obviously, all the ports of the Spanish Main could not be made into fortresses, so de Tejada and Antonelli proposed to concentrate on ten seaports that could be strongly fortified. These ports followed the routes of the treasure fleet convoy system. **San Juan** (Puerto Rico) was the first port of call of the fleet coming in from Spain. Then, a squadron called on **Santo Domingo** (Hispaniola) and **Veracruz** (Mexico) before going to **Havana** (Cuba). The other squadron called on **Santa Marta**, **Cartagena de Indias** and **Nombre de Dios** (replaced by **Portobello** in the 1590s) before going back to Cartagena de Indias and from thence to Havana. The city of **Panama**, on the Pacific, **Nombre de Dios** and the entrance of the **Chagres River** were also to be fortified. From Havana, the reunited treasure fleet sailed by the Bahamas, whose hundreds of islands were a perfect hiding spot for enemies. Therefore, although isolated on the North American coast, **St Augustine** in Florida was also to be fortified and garrisoned.

During 1588, King Felipe II was preoccupied with the fitting out of the 'Great Armada' to invade England. Its ultimate defeat and dispersal in August and September certainly meant that the English would mount more raids in the future. Spanish naval power was also greatly reduced because of that disastrous campaign. In November 1588, the king approved of the fortifications plan for the Spanish Main and tasked de Tejada and Antonelli to supervise the construction of the new forts. They accordingly left Cadiz for the Indies in February 1589, taking with them a cadre of skilled artisans that included a dozen master stone cutters, 18 master masons, two smiths, a cooper, a foundry master and an overseer. Labourers would be recruited on the spot and would be reinforced by slaves when necessary. A reinforcement of 320 soldiers was also part of the expedition. The *castillos* that would be constructed in the various ports called for different modern designs. Thanks to the engineer Antonelli, the new forts were largely inspired by the 'Italian trace' style of fortifications featuring bastions.

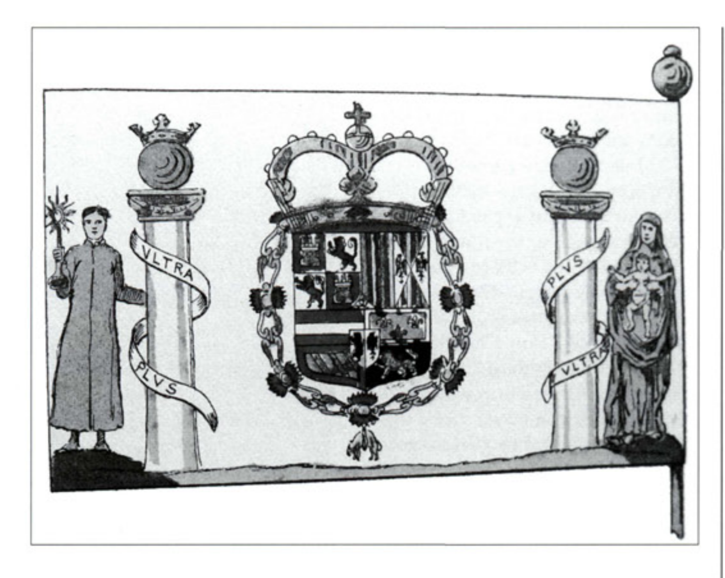
Because of its strategic situation, **Havana** was the centre of the West Indies. Its importance as the assembly point for the treasure fleet convoys going to Spain made it the most essential harbour city in the Spanish Main and one of the most urgent places to safeguard. De Tejada made it his headquarters and construction started immediately. The fort of the Fuerza Real in Havana, built from 1558, had been the first in America featuring bastions. The two new forts designed by Antonelli in Havana from 1589, the Morro and the Punta, were among the most modern fortifications for their time. They were built on both sides of the harbour's narrow entrance and construction went on for over 40 years, being completed in 1630.



The south wall of Castillo San Marcos, with the San Augustin bastion to the rear featuring the pre-1785 Spanish flag, the red ragged cross of Burgundy on a white field. Iron naval cannons are mounted on garrison carriages. (Photo by Stephen Wood)

San Juan, **Puerto Rico**, also urgently needed strengthening, as it was the entry point of the treasure fleet convoys sailing from Spain. The main object there was to protect the rear of the tower fort of El Morro at the harbour's entrance by building a line of landward defences on the cliff above. Securing the area was Antonelli's first priority and he immediately had a wall built across the peninsula in the form of a hornwork during 1589. Each end had a half-bastion, that of Tejada (later Ochoa) on the Atlantic and that of Austria on the harbour. A ravelin was built between the two half-bastions. This wall transformed San Juan's defences from isolated towers into a powerful bastioned fort with the old El Morro tower castle acting as

the city's citadel. The other outlying towers and batteries now formed part of an integrated defence system. But the town itself remained without protective walls for several decades. The new fortifications must have looked impressive but the lure of booty was even stronger. In November 1595, Drake was back in the West Indies leading a fleet of 26 ships carrying 2,500 men, but he sailed on after the garrison of San Juan repulsed his two attacks.



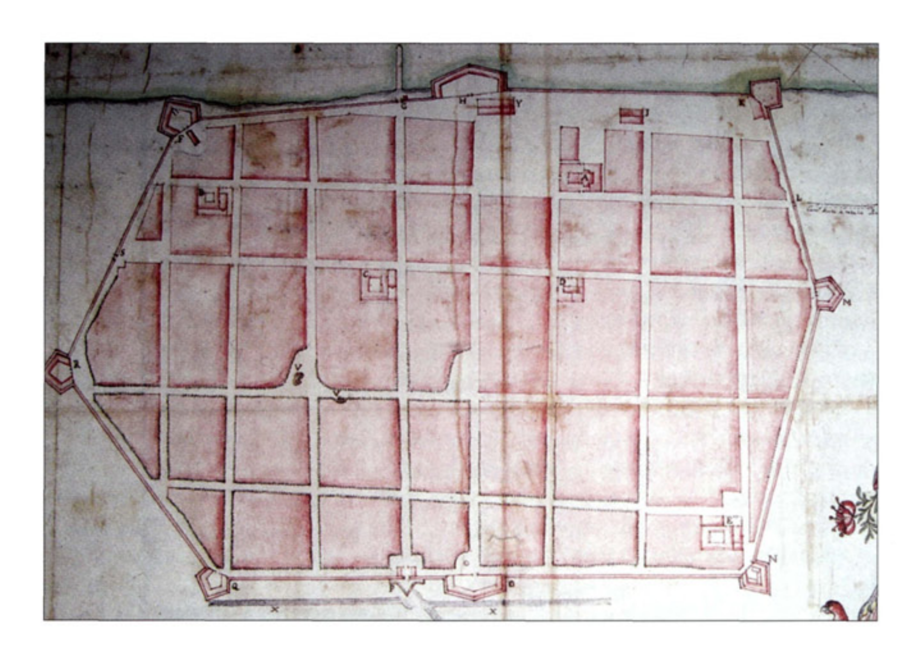
Royal standard taken by the French at the capture of Cartagena de Indias in 1697. This elaborately decorated standard was probably flown on feast days and other formal occasions, the ordinary standard usually being white with the red ragged cross of Burgundy. Detail from a plate in *Les trophés de la France* (1908). (Author's collection)

Cartagena de Indias had a peculiar location, facing both the sea and a large interior harbour, so it presented a number of difficult issues that were not addressed immediately. Eventually, during the 1590s, Antonelli identified the key problems regarding the city's defences. Its sea side was only vulnerable to relatively modest, quick raids, something that a good rampart would solve. The two large interior bays, one of which was the town's harbour, presented a more complex problem; they gave ideal protection to ships from storms at sea and could accommodate a large fleet. The most urgent area to protect was the town's interior harbour. It could only be accessed by the canal at Bocagrande. Fort San Matias, already established at the north end of its entrance on the Atlantic since the late 1560s, was to be rebuilt as a larger work, which was done from 1602. The following year a battery called Fort Santangel was built on the south side to provide crossfire. The entrance to the outer large bay was through the Bocachica canal, an area that was not fortified at this time. The city also needed to be enclosed by ramparts. The first design for the city's walls was presented in 1597 although actual work did not start until 1614.

The key to **Veracruz**, Mexico's main port, was the fort of San Juan de Ulua on a low-lying island facing the town. Various structures had stood there since Cortez had founded the city in 1519. The latest fort, made of stone, had been started in 1582 and was spurred on by the plan of 1588. By the 1590s, it was an impressive work consisting of a square tower and a large half-bastion connected by a double curtain wall of some 120m, all these being mounted with artillery. This wall was fitted with 'large, heavy bronze rings' to which ships were fastened with strong cables so as not to be blown off by the strong northern winds present in that area. Following his visit in January 1587, Antonelli made a design for a much larger fort with bastions and outer works. It would be worked on for over a century.

Santo Domingo was the one city that did not receive substantial new fortifications following the plan of 1588, probably because the city already had stronger defences than other ports. Santo Domingo's defences may have been medieval in style, but it had a substantial wall on its west and north side and, until Bautista Antonelli's forts were built elsewhere, the largest stone 'castle' in the Spanish Main. The Spanish authorities put the emphasis on improving existing works, a policy that remained basically unchanged until the end of the Spanish dominion on Santo Domingo during the 19th century. Another reason was Santo Domingo's decreasing importance as an administrative and commercial entity as the Spanish empire in America expanded onto the mainland of the continent in Mexico and South America. Ports where the treasure fleets assembled were the most vulnerable and had to be secured at all cost. Nevertheless, a moat was built outside the walls and more batteries went up over the years but no state-of-the-art citadel was built in Santo Domingo.

Work on the fortifications at the isthmus of **Panama** were delayed by a few years due to the abandonment of the swampy and fever-ridden town of Nombre de Dios in favour of nearby **Portobello**, which had a better harbour



Plan of Campeche, the main coastal town in Yucatán, Mexico. The town was founded in 1540 and in the 17th century was repeatedly attacked by pirates and enemies. When some 1,100 French corsairs attacked Campeche in 1685, the existing minor fortifications proved utterly inadequate and the town was taken and sacked. From 1686 to 1704, the town was surrounded by an impressive hexagonal wall with a perimeter of 2.5km, a height of 6–8m, and a width of 2.5m. An urban checkerboard plan was laid out, with the Plaza Mayor facing the sea and surrounded by government and religious buildings. At the top of this plan, the bastions of San Carlos (F), la Soledad (H) and Santiago (K) face the Caribbean Sea. The San Carlos bastion was built on the foundations of a previous fort. Apart from the new land gate (bottom) built in 1732, this 1734 plan shows the fortifications when completed in 1704. (Instituto de Historia y Cultura Militar, Madrid)

and was easier to fortify. The move was effected in 1596–97. Fort Santiago de la Gloria battery was built at the edge of town, and Fort San Felipe at the other side of the bay's entrance, known to the English as the 'Iron Castle'. Portobello was nevertheless attacked, taken and sacked by the English corsair William Parker and his men on 17 January 1601 after a desperate fight by the Spanish garrison. Three small forts on the heights above the town called Peru, Triana and La Trinidad, probably built shortly thereafter, are also mentioned in 1621. Antonelli had planned Fort San Jeromino to be built at the town of Portobello, but work on this structure did not start until 1658.

To protect access to the town of Panama from the Atlantic side of the isthmus, Fort San Lorenzo was built at the mouth of the **Chagres River**, using a design by Antonelli. Work started in 1596 and went on for 30 years. As for the town of **Panama** itself, its only fortification was Fort La Navidad, apparently built shortly after the town was founded in 1519, to offer some protection on its western side. It appears to have been quite small and was probably simply a battery of six cannons. In the second half of the 16th century, an area called *Las Casas Reales* (the royal houses), on the eastern end of the town, was surrounded by a palisade that had several bastions and possibly light-calibre guns. The town had no walls but its location on the Pacific coast made it a difficult target to reach. Furthermore, since Drake's and Cavendish's raids on the coast of Chile and Peru, the Spanish stationed a squadron of warships on the Pacific coast. In 1593, it intercepted and defeated an English squadron that intended to raid the Pacific coast ports. Richard Hawkins (son of Sir John Hawkins) was captured in the fight.

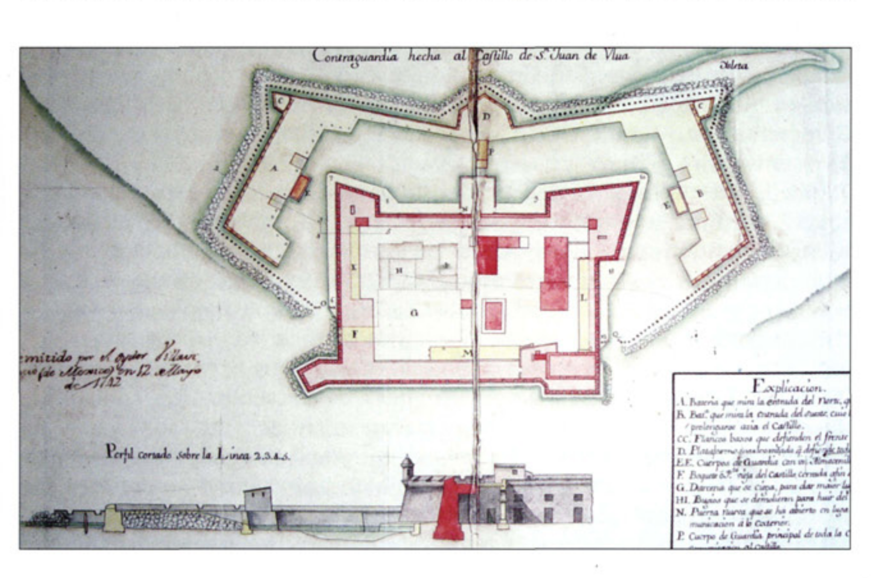
St Augustine remained low in the fortifications priorities. Obviously, attention was first given to the building of forts at populated colonial cities, such as Cartagena de Indias, whose inhabitants clamoured for protective measures.

The 1588 plan was only partially implemented in the following years. It was most successful at Havana and was certainly a very major step in securing the towns of the Spanish Main. However, pirates and enemies of the Spanish crown were not discouraged easily as events occurring in the 1590s and during the 17th century would show.

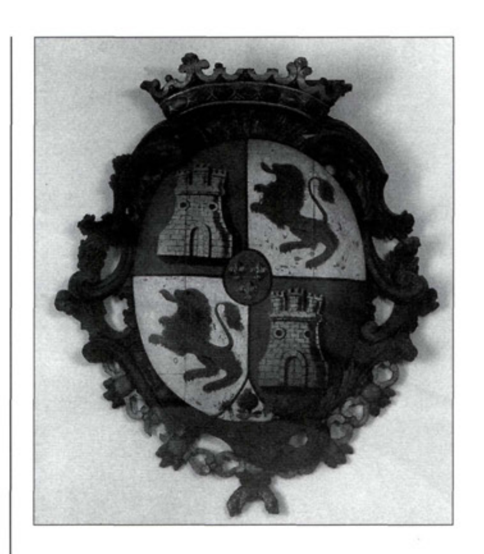
Declining fortunes 1600–70

The plan of 1588 could only be implemented gradually because it was quite extensive and obviously expensive. To build, arm and garrison a large fort in the Spanish Main was a costly and time-consuming process, especially in the more remote areas such as the mouth of the River Chagres, where everything – building material, labourers, soldiers, supplies, food and ordnance – had to be brought in. During the first half of the 17th century, Spain was declining as a world power. Wars in Europe had gone badly and Spanish forces on land and sea had been defeated by the Dutch, English and French. Furthermore, the economy had almost collapsed in spite of the wealth from the treasure fleets from America. To make matters worse, from 1640, the Portuguese successfully rose against the Spanish crown, liberating themselves from the forced union of 1580. In the process, they reasserted their sovereignty in Brazil and rekindled their ancient alliance with Spain's maritime arch enemy, England.

This decline in Spain's fortunes was mirrored in the Spanish Main. From the 1620s the smaller West Indian islands that had remained unsettled east of Puerto Rico and north of Venezuela, such as Martinique, Barbados and Curaçao, were colonized by French, British and Dutch adventurers. The Spanish tried to drive 'trespassers' out, notably in 1629, when Admiral de Toledo, leading some 30 ships of the treasure fleet with plenty of troops, took several islands. But the Spanish did not occupy the islands and the adventurers returned as soon as the Spanish had sailed away. Mostly French 'buccaneers' took root on the unsettled west coast of Hispaniola (which became Haiti), while Englishmen claimed the Bahamas, Jamaica and the Carolinas. The Spanish soon found they could not chase any of them out and their ruthless and often cruel attempts to do so made them the prime and despised target for every adventurer turned pirate or corsair in those new settlements. With bases such as Tortuga off Haiti, New Providence in the Bahamas and Port Royal in Jamaica, corsairs and pirates descended upon all parts of the Spanish Main. During the 1660s the situation reached a new low for the Spanish with the fall of Santiago de Cuba, St Augustine, Maracaibo, Portobello and Panama (in 1671). Forts were built or strengthened here and there, but many towns still



Plan of the citadel of San Juan de Ulua. Between 1671 and 1712, the fortifications of San Juan de Ulua were expanded to form a rectangular fort with four irregular bastions. Additional batteries were placed outside the moat on both sides; an elevation of the outside battery to the left is shown at the bottom in this 1742 plan. The fort remained essentially the same until the American War of Independence. (Instituto de Historia y Cultura Militar, Madrid)



The 18th-century Spanish coat of arms that was fixed over the gates of Havana. It showed the simplified arms of Spain with only the castle turret for Castille and the lion for Leon with a grenadine for Grenada at the bottom. At the centre is a blue oval with the three gold lilies of the Bourbons, Spain's royal family since 1700. Similar crests were put over the gates of forts and official buildings all over the Spanish Main. (Museo de la Ciudad, Havana/author's collection)

remained exposed. Most of all, Spain's declining maritime and military power during the 17th century exposed the Spanish Main to naval predators of all sorts, under all flags, in peacetime or war.

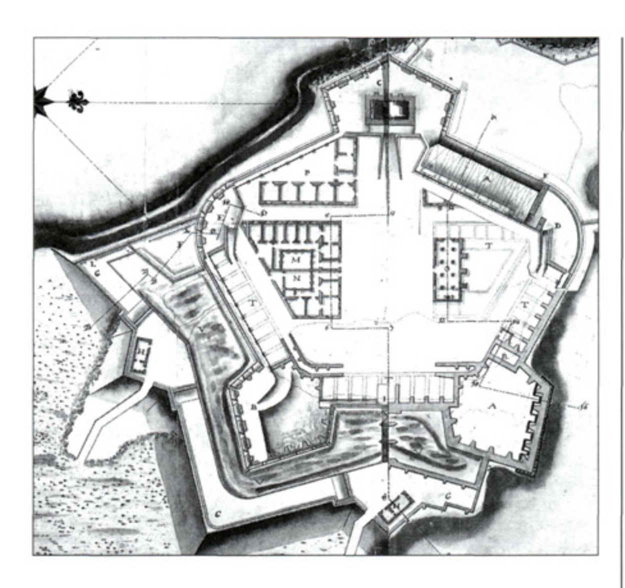
Havana's forts, constructed according to the 1588 plan, were only completed in the early 17th century. The Castillo San Salvador de la Punta was finished in 1630, at the same time as the largest work, the Castillo de los Tres Reyes del Morro, across the harbour entrance. 'Morro Castle', as the British called it, was especially impressive, being sited prominently on high ground with its lookout tower at the point; it towered over entering ships and its water-level batteries could fire across the narrows at almost point-blank range. With the Castillo de La Fuerza Reale further in, the city now had three major defence works. The city of Havana had no walls until 1603 when engineer Cristobal de Roda built a wood and earth palisade. It enclosed the city in a somewhat irregular semi-circular trace that featured bastions at each end, and three wide and equidistant bastions along the rampart. In 1647 the Torreon de la Cherrora (Cherrora Tower), a small but formidable coastal fort made of cut stone with guns mounted on top, was built to safeguard the Bay of Cherrora west of Havana. The bay had been used as a discreet landing place for pirates and corsairs since the end of the 16th century. Two years later, the Torreon de Cojimar, another outer tower, was built east of Havana. Thus, by the middle of the 17th century, the city of Havana was defended by three substantial masonry forts, strong tower forts to guard its eastern and western approaches, and had a wall enclosing its landward side. It also had a garrison of over 600 regular soldiers assisted by ten companies of 'well disciplined and well armed' militia. All this made it the strongest place in the Spanish Main.

El Morro at **San Juan**, **Puerto Rico**, was a strong fort. It had been attacked without success by the English and, in 1625, a large Dutch force landed and took the town on 26–27 September, but the garrisons in the forts held out. The small island fort of La Cañuelo, which was built of wood in 1610, was also taken and destroyed by the Dutch after stubborn resistance. The 330-man Spanish garrison shut itself in El Morro; the Dutch besieged the citadel, but without any success. The tenacious Spanish were well covered in El Morro and put up fierce resistance. Realizing they could not take El Morro easily, the Dutch finally departed on 2 November after looting all they could take in the town. Thereafter, it was obvious that the city of San Juan needed a wall for its protection, and, from 1634, a rampart was built along the low southern coast that faces the harbour. It seems to have been essentially in place between 1638 and 1650, although work went on until 1678. A small redoubt with adjoining ramparts was begun on San Cristobal height in 1634 on the city's north-east side to block enemy access from that side. The rugged cliffs on the north side facing the Atlantic Ocean were deemed sufficient protection until the 18th century.

The fortifications of **Cartagena de Indias** were gradually expanded during the 17th century following the designs of Bautista Antonelli. While the city walls and bastions were slowly erected, forts to protect the harbour's entrance at Bocagrande were constructed or upgraded: Fort Santangel on the south side was completed in 1631 and forts Santa Cruz (or Castillo Grande) and San Juan de Manzanillo were sited on the north side at each side of the inner bay's entrance. Two more forts on the north side of that inner bay faced its entrance by 1635. A bastioned fort, named San Luis de Bocachica, was constructed during the 1660s at the Bocachica bay entrance further south. The idea was to concentrate defences at the southern bay's entry and eliminate the Bocagrande entry. The forts of Santangel, San Luis and Manzanillo became redundant and were either dismantled or turned into storehouses. The city itself had good walls with bastions by the 1640s, but no stronghold. There was a small hill just

northeast of the city that would provide the enemy with an excellent artillery position to bombard the town. It was decided to put the citadel there and construction started on the fort of San Felipe de Barajas in 1647.

At **Veracruz**, work went on slowly on the fortress at San Juan de Ulua, while priority was given to building a rampart around the city. By the 1630s, the walls were going up and, in 1635 the large Santiago Battery was constructed at the south end of the city. This battery still stands. Another large bastion was built further west on the walls.



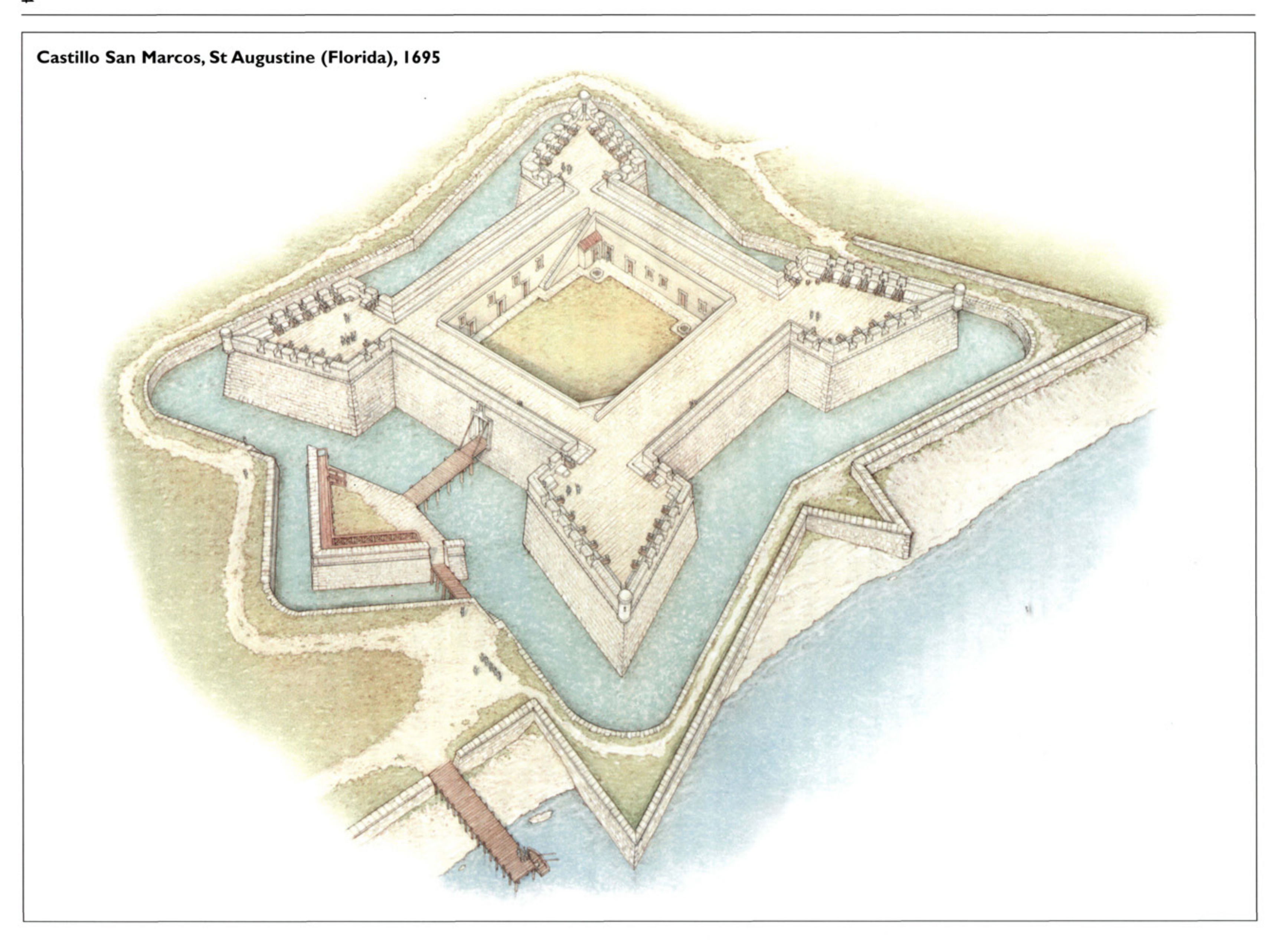
Plan of Fort San Felipe de Puerto Cabello (Venezuela) in 1743. This large fort was built from 1729 on the Caribbean coast to protect access to the city of Caracas in conjunction with fortifications at La Guaira. Its design was based on a pentagon 'star fort', but instead of having the usual five bastions it had two large batteries replacing bastions on two sides. (Instituto de Historia y Cultura Militar, Madrid)

The colony of **Santo Domingo** decreased greatly in importance during the 17th century. Consequently, the city of Santo Domingo, as well as the town of Puerto Plata, remained somewhat static in their development. Only the eastern part of the island of Hispaniola had been colonized by the Spanish since the 1490s. The western part, called Haiti by the Indians, was a wilderness that was left to itself during the 16th century. However, as the 17th century progressed that western part was home to an increasing number of mostly French adventurers used to a life of roaming in the bush hunting the wild pigs that thrived there, and smoking their meat for preservation by means of a *boucan*. These men become *boucanniers* – or 'buccaneers' in English. They also devised a remarkably accurate flintlock musket that had a long barrel and a sturdy butt, the 'Buccaneer gun', with which they were very proficient. These were ferocious men who would barter hides and smoked meat to passing ships in return for cloth, arms and ammunition. Some of them made a settlement of sorts on the island of Tortuga, off Haiti's north coast. Learning of these adventurers encroaching on their domain, the Spanish decided to drive them out for good. In 1631 a Spanish force from Santo Domingo took Tortuga by storm and a small garrison was left there. This, and other actions like it, made Spaniards the deadly enemies of the wild buccaneers who neither gave nor asked for quarter. They were equally proficient at sea and made serious attacks on the commerce and fabric of coastal towns throughout the Spanish Main. By the 1660s the buccaneers of Haiti had secured the area completely. By then, some had started plantations in what proved to be remarkably rich soil. A wily King Louis XIV then made one of them, Bertrand d'Ogeron, his governor and dispatched French warships to protect what, in effect, became a French colony that was finally recognized by Spain in 1697.

In terms of defence, the settlers and garrisons nevertheless held their own during the 17th century. In 1655 Britain and France entered into a commercial alliance against Spain, and when the city of Santo Domingo was the target of the British force sent to carry out Oliver Cromwell's 'Western Design' in April 1655, its garrison proved equal to the challenge in spite of being heavily outnumbered. The site of the city did not favour a landing so the English force of some 6,700 men led by Gen. Robert Venables landed on the island about 50km west of the city. After a harassing march, the walls of Santo Domingo seemed too much for the exhausted and undisciplined attackers. A sudden attack by Spanish cavalry armed with lances threw the English force, by then a mob, into panic and only a brave stand by sailors from the fleet prevented an outright massacre. By the end of April, the stunned survivors had re-embarked on their ships. This outstanding victory by a handful of militiamen over thousands of British troops did not point to a need for more fortifications at Santo Domingo, so the defences were left pretty much as they were.

Besides Haiti, the other loss to the 17th-century Spanish Main was the island of **Jamaica**. After failing at Santo Domingo, the English fleet sailed for nearby

Castillo San Marcos, St Augustine (Florida), 1695



LEFT **Castillo San Marcos, St Augustine (Florida), 1695** This large masonry fort was started in 1672, and was meant to provide an imposing Spanish presence, given the increasing pressure from the British colonies to the north and from pirates and buccaneers in the Bahamas and Haiti. It replaced weak wooden forts that tended to be badly damaged by hurricanes and sea storms. Engineer Ignacio Daza designed the new fort. Work went on slowly and stopped from time to time but, in spite of its isolation and lack of supplies, the Castillo San Marcos was finished in August 1695. Its layout consisted of a square with a large bastion at each corner, allowing the fort's 27 guns to cover the low and flat terrain. The walls were over 6m high and the moat 5m wide. It successfully resisted Anglo-American sieges in 1702 and 1740. The fort underwent few changes in the next half century. New casemates were built between 1752 and 1756 that widened the terreplein and raised the height of the walls.

Jamaica and landed without much opposition in the area of the present city of Kingston on 10 May 1655. Jamaica was a sparsely settled Spanish colony of perhaps 1,500 people all engaged in raising cattle. It was occupied by the British without much difficulty and was soon reinforced with more English troops and settlers. Two years later, a Spanish force from Cuba landed on Jamaica's north coast intent on retaking the island, but it was utterly defeated by the English garrison. Jamaica would soon become the prime base for English corsairs and pirates.

On the Caribbean coast of South America, there were 'castles' in **Santa Marta**, **La Guaira** and **San Antonio de Gibraltar**, but **Maracaibo** had only a battery with a few guns according to John Esquemeling, the historian of the buccaneers. Fort San Vincente, a strong masonry bastioned work, was built at Santa Marta from 1644. San Antonio de Gibraltar and Maracaibo were weaker and were captured by the pirate L'Olonnois in 1666 on commission from Portugal, and again by Henry Morgan in 1668. In April 1669, Morgan sank three warships sent from Spain on Lake Maracaibo. This left the whole area without adequate protection.

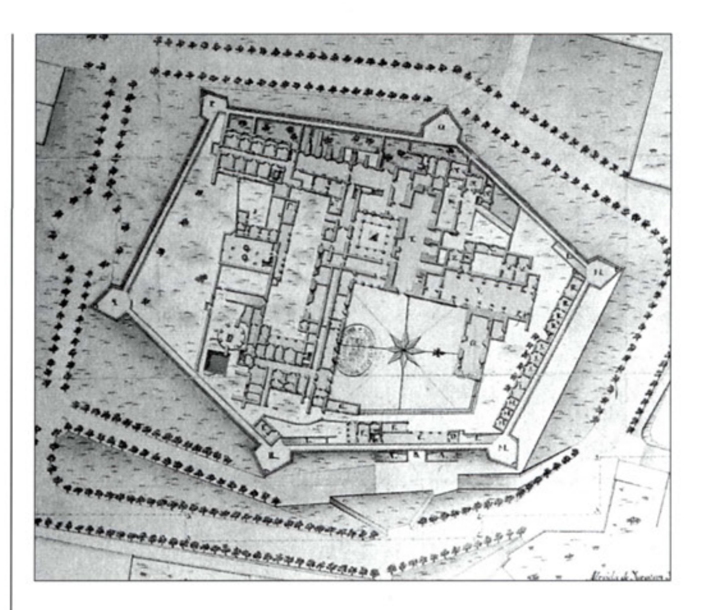
Santa Catalina Island, off the coast of Nicaragua, was settled by the English, who named it 'Providence' (or 'Old Providence'), from 1629. In 1638, it served as a base for the Anglo-Dutch corsairs who looted Trujillo, Nicaragua. A Spanish first counterattack from Cartagena de Indias was repulsed in 1640, but the colony fell and was dispersed the following year. The Spanish maintained a small garrison there and had nine forts mounted with artillery, including one named Santa Teresa 'built with stone and mortar, with very thick walls on all sides', as well as a ditch 6m deep according to Esquemeling. English corsairs under Edward Mansfield and Henry Morgan took it in 1665, but it was recaptured by the Spanish the following year, and then taken again by Morgan in 1670. It thereafter lost its importance.

If the pirates and corsairs had a favourite port to raid, it was **Portobello**. Besides being the Atlantic port for the treasure fleet from Peru, its great trade fair and the riches of its citizens attracted all sorts of adventurers. In spite of its forts, it repeatedly fell to the enemy who would sometimes demand a ransom so as not destroy the place. In an effort to better its defences, its two forts were joined by a third from 1658, that of San Jeromino, which was a long battery armed with about 18 guns. In June 1668, it was the scene of fierce fighting against Captain Henry Morgan's men. The corsairs prevailed and obtained a ransom of 250,000 ducats. All three forts were damaged and were left in bad repair.

Fort San Lorenzo de Chagres, north of Portobello, was finished in 1626 after some 30 years of construction in a very alien and isolated environment. Built to provide

Plan of Cartagena de Indias in 1730. This was essentially the aspect of the city's fortifications when the British besieged it in 1741. Cartagena de Indias was built on two large peninsulas almost entirely surrounded by water and was on relatively low land that was often swampy. The Atlantic Ocean side (bottom) was (and remains) a sandy beach. The city's walls enclosed both peninsulas and were punctuated by numerous bastions mounted with artillery. The higher ground (top left) just outside the city was dominated by the small citadel of Castillo San Felipe de Barajas. (Instituto de Historia y Cultura Militar, Madrid)





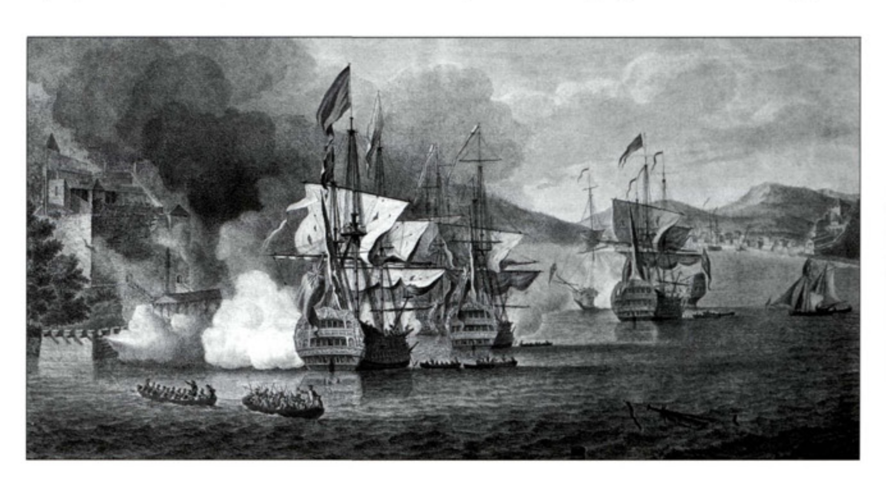
Plan of Merida in Yucatán. Founded on the ruins of a Maya city in 1542, the Spaniards used the massive stones from the temples to build the Cathedral of San Idelfonso 1556–99, the oldest on the American continent. In spite of being situated 35km inland from the Caribbean Sea, Merida was raided by both pirates and the indigenous Mayas, which prompted the construction of city walls in the 18th century, shown in this 1788 plan. It was demolished in the 19th century, although several gates have been preserved. (Instituto de Historia y Cultura Militar, Madrid)

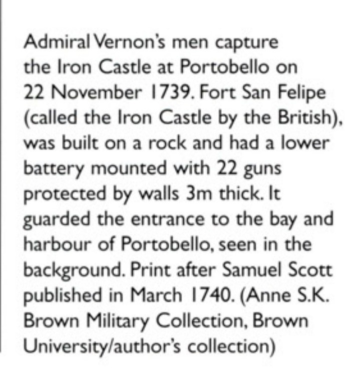
protection for the town of Panama from the raiders of the Caribbean Sea, according to Esquemeling, this 'castle was built upon a high mountain, at the entry of the river, and surrounded on all sides with strong palisades or wooden walls; being very well terrepleined, and filled with earth; which renders them as secure as the best walls made of stone or brick. The top of this mountain is in a manner divided into two parts, between which lies a ditch of the depth of thirty foot. The castle itself has but one entry, and that by a drawbridge, which passes over the ditch aforementioned. On the land side it has four bastions, that of the sea containing only two more.'

Panama, on the Pacific, was considered much less likely to be attacked. Although the 1588 plan had designated fortifications for the town, they were clearly not regarded as a priority. At the beginning of the 17th century, the city had the walled Casas Reales government compound at its centre overlooking the Pacific, with the two small forts of Navidad and Matadero guarding its western access road. A regular garrison was also posted there but it remained basically an undefended town without walls. By the 1630s it had about 700 houses.

Santiago de Cuba was that island's second largest town after Havana. It is situated somewhat inland at the bottom of a large bay and has never had walls. For its protection, the most important place to fortify was the bay's narrow entrance leading to the port. The first substantial fort there appears to have been built from 1590. Although it was not on the initial list of places to fortify in the 1588 plan, Santiago de Cuba's importance as a city warranted defensive works and King Felipe II ordered that a fort be built at the bay's entrance. Antonelli designed it and work started. In 1638, town Governor Pedro de la Roca had the works expanded and the fort took the name of Castillo de San Pedro de la Roca del Morro. Work continued in spurts on this multi-level fort built on a high cliff with two supporting smaller forts or batteries. Nevertheless, English freebooters took the town in 1662, sacking the place for two weeks and destroying part of the fortifications. The Spanish government ordered the repair and expansion of the fortifications and raised the garrison to an establishment of 300 men.

On Mexico's Pacific coast, **Acapulco** had a fine harbour and had been settled by Spanish colonists since 1550. In 1565, the first voyage from the Philippines





Admiral Vernon's men capture the Iron Castle at Portobello on 22 November 1739. Fort San Felipe (called the Iron Castle by the British), was built on a rock and had a lower battery mounted with 22 guns protected by walls 3m thick. It guarded the entrance to the bay and harbour of Portobello, seen in the background. Print after Samuel Scott published in March 1740. (Anne S.K. Brown Military Collection, Brown University/author's collection)

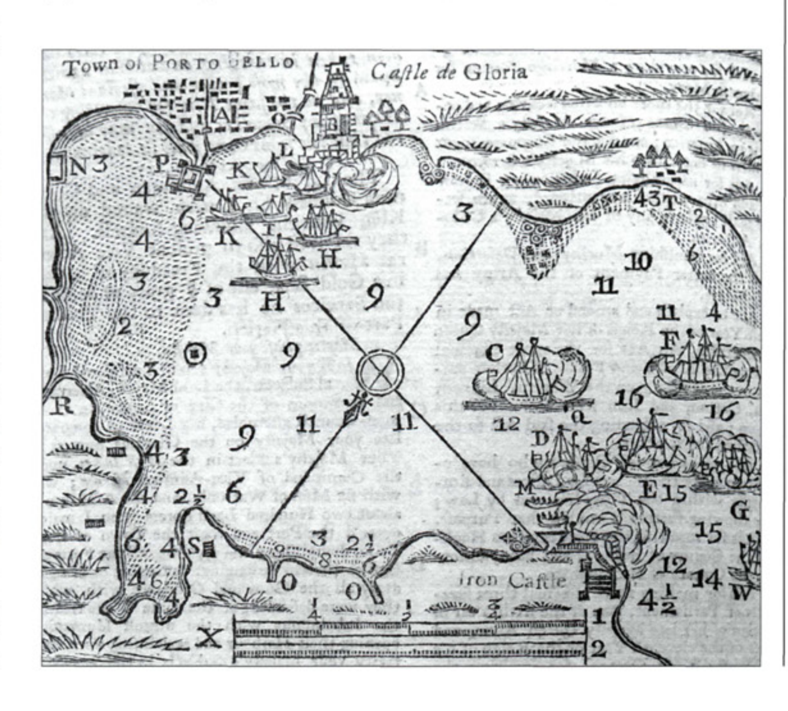
to Mexico was made thanks to the discovery of the northern Pacific winds. Thereafter, the yearly 'Manila Galleon' brought goods such as silk, porcelain and ivory from the Far East to Acapulco, to be carried overland across Mexico to Veracruz and loaded on the treasure fleet for Spain. A modest fort was built to secure Acapulco's harbour. This seemed sufficient for its security until 1615, when a Dutch squadron unexpectedly raided the place and razed its fort. The Spanish quickly rebuilt a stronger masonry fort named San Diego in 1617 and introduced more security measures to guard against similar surprises in the future. A watch of two men was constantly kept from the top of a mountain near the town. One looked towards Peru for ships coming from the south, the other looked westward. When a vessel was spotted, a messenger was sent to the fort, which fired a cannon letting it know it had been seen. If friendly, it signalled to the vessel that it could enter the harbour. If an enemy, it warned him that the garrison of Acapulco was in arms and ready for action. In 1697, Fort San Diego was mounted with 42 brass cannons and had a regular garrison of 60 men.

Diminishing naval protection

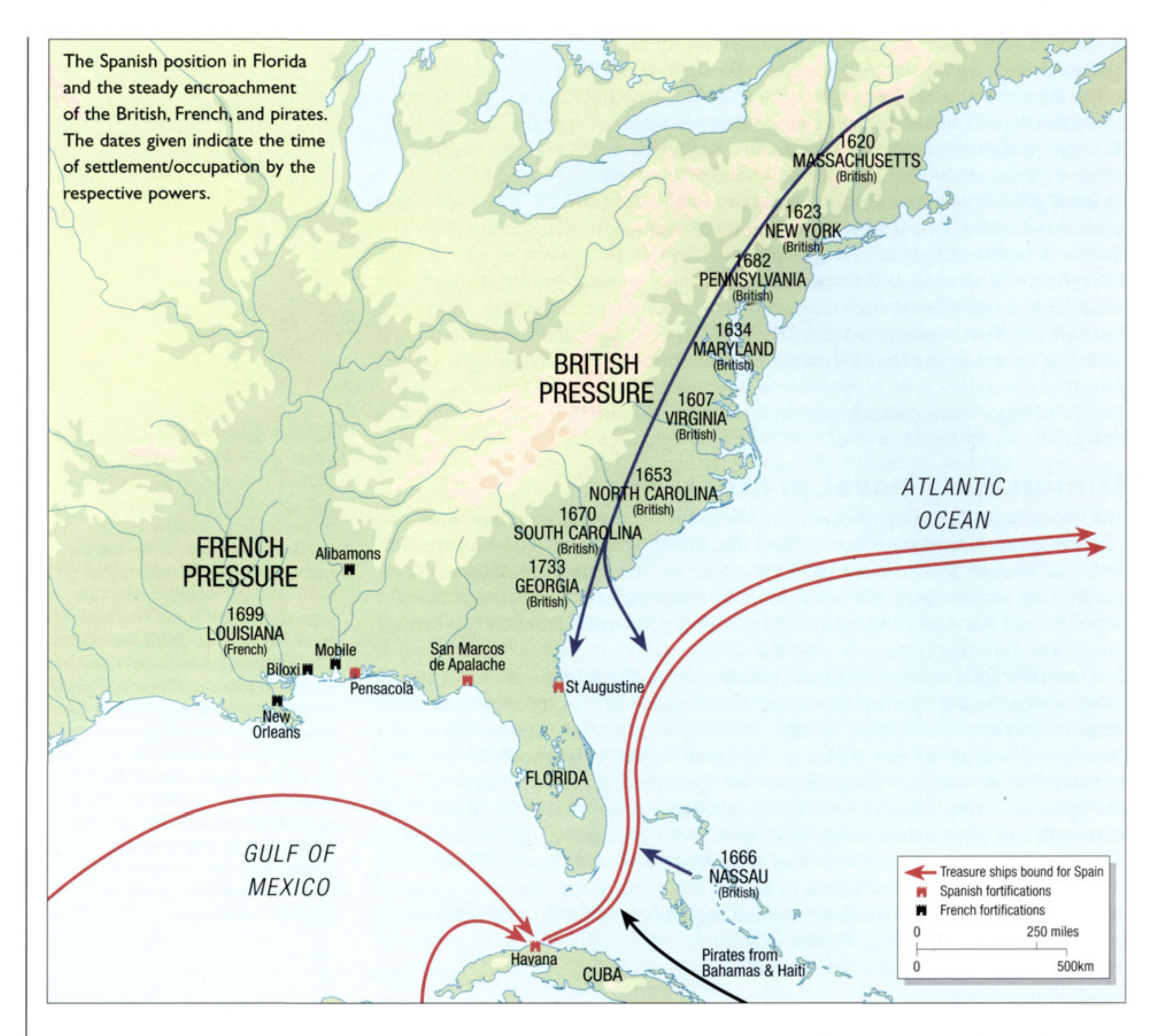
The defence problems of the Spanish Main during the 17th century were not solely due to a lack of fortifications and insufficient garrisons. Naval protection was also a cause. By the early 1600s, the Spanish navy had been surpassed by the fleets of Holland and of Great Britain. To make matters worse, the successful separation of Portugal from its forced union with Spain weakened even further an already very fragile navy during the 1640s.

Only new corsair attacks and raids would revive the schemes to have a local defence fleet in the Spanish Main, but the Council of the Indies was slow to react to threats of this type. In the 1640s, a substantial *Guardacosta* (coast guard) was set up in the ports of the Spanish Main, financed by colonial revenue, but it was incorporated into the Spanish royal navy from 1647 and disappeared. Other small coast guard organizations were later set up by local authorities to patrol their areas, but there was no longer a powerful fleet of warships to back them up. Those that remained were used to provide escorts to the treasure fleets, and the safety of these fleets was Spain's absolute priority. The defence of the main treasure fleet assembly ports of the Spanish Main such as Havana and San Juan, Puerto Rico, came next and lesser places were much lower in importance.

So, from the late 1640s, the Atlantic ports and coasts of Spanish America were left unprotected except for their fortifications. Pirates and corsairs naturally noticed this and renewed their attacks. By the 1660s, the creation of a new squadron was finally approved following appeals by colonists for naval protection. This was also in reaction to the British conquest of Jamaica in 1655 and the consolidation of the buccaneer coast to France on the western coast of Haiti. Thus, five Spanish men-of-war sailed for America in 1667, but two went back to Spain escorting treasure the following year. The three remaining warships were later destroyed by Henry Morgan at the entrance of Lake Maracaibo. With no further opposition in the way, Morgan went on to take Panama City. This disaster led to the posting of permanent



Admiral Vernon's November 1739 attack on Portobello as seen in the *Gentlemen's Magazine*. The town had no walls but was defended by three forts. At lower right, the British warships enter the bay past the Iron Castle, which had been taken by Vernon's men. The Spanish garrison in the two other forts surrendered on 22 November. Gloria Castle 'consisted of two regular bastions and a curtain [wall] between them', armed with 22 guns 'besides a line of eight guns that pointed towards the harbour'. As for the long battery of San Jeromino, it 'rendered the entrance of the harbour very difficult and dangerous', according to Capt. George Berkley's *Naval History of Britain* published in 1756. (Author's collection)



The Spanish position in Florida and the steady encroachment of the British, French, and pirates. The dates given indicate the time of settlement/occupation by the respective powers.

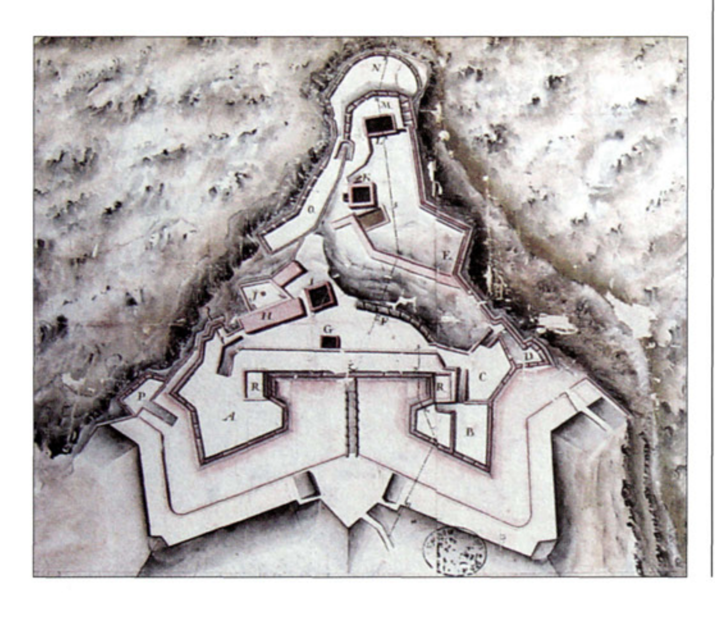
squadrons at Cartagena, Portobello and Campeche during the 1670s. Other areas were provided for as time went on, with Havana being the main naval base in the Indies for the treasure fleets and the re-created Borlavento fleet. From the 1700s, the Spanish navy was given a modern organization comparable to navies in France or Britain, and held its own during the first 60 years of the 18th century. Spanish ships-of-the-line were again seen in some numbers on the high seas.

Defending the Spanish Main 1670–1763

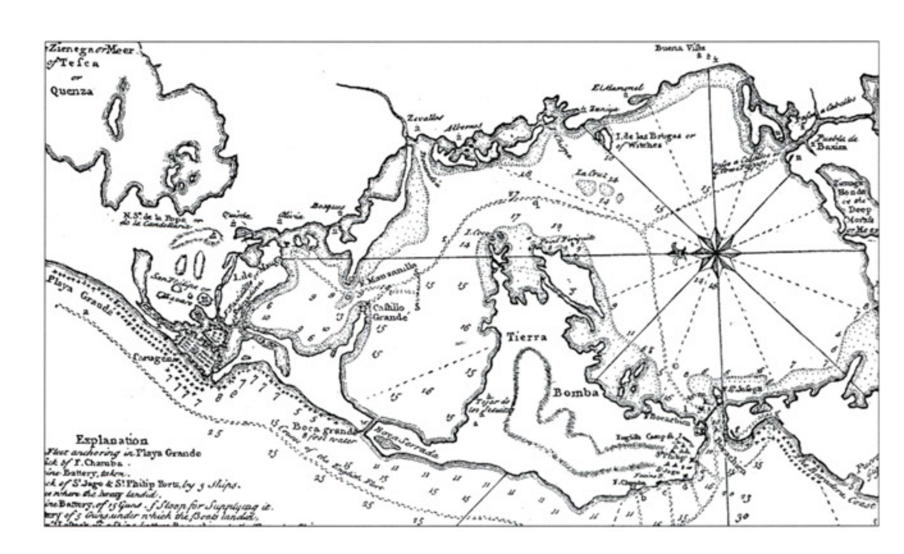
Having seen a succession of colonial towns fall to corsairs and pirates (such as Portobello in the 1660s), the Spanish feared that major centres such as Havana might be devastated even if their forts held out, as had happened in San Juan in 1625. English colonial pressure north of Florida and in the Bahamas, allied to the French buccaneers in Haiti, compounded threats to the safety of the treasure convoys once they had left Havana. The Spanish decided to reinforce the fortifications of a number of towns: masonry walls were constructed around Havana and Panama, and a citadel was built at St Augustine. By the later 17th century pirates and corsairs had not only become almost completely fearless, but they increasingly allied with the warships of their own nation. Baron de Pointis' force that took Cartagena de Indias in 1697, for example, consisted mainly of French naval ships with battalions of marines, as well as buccaneers from Haiti.

From the early 18th century, pirates became recognized bandits and were hunted down by all maritime nations. Major warlike expeditions were henceforth the domain of the national forces. This implied a degree of professionalism in siege warfare previously unseen in the West Indies. By the time of the War of Jenkins' Ear in 1739–41, the fleets that attacked the Spanish Main under admirals Anson and Vernon had thousands of regular troops on board, but the Spanish managed to counter most assaults. The Spanish Main's system of defence was thus generally deemed to be efficient, although it needed some refinement, notably in the organization and strength of its garrisons. During the Seven Years War (1756–63), the British refined the coordination of sea and land forces to such a degree as to become almost invulnerable. Colonial fortresses such as Louisbourg, Québec and Fort Royal in Martinique all surrendered in the face of British attack. Havana, considered the strongest place in the Spanish Main, also fell in 1762. The fall of Havana was a terrible blow to the Spanish and prompted a revision of the whole system of defence.

With the three forts of Morro Castle, La Punta and Fuerza Reale, **Havana** seemed well protected during the 18th century. The forts were well maintained, but were not substantially expanded. In the late 17th century the real worry for the inhabitants and the authorities was the lack of a proper city wall. There had been a wood and earthen wall since 1603, but a high masonry wall was required. In 1674 construction began on Havana's stone walls and building continued, with various refinements, until 1797. However, the ramparts enclosed the city by the 1690s. The walls were 10m high, extended in an arc of some 4.5km and mounted some 180 guns. There were ten small bastions placed equidistant along the wall. From the end of the 17th century, regular troops from Havana's garrison were detached 25km eastward to protect Matanzas, which had become Cuba's third most important port city, and a square-bastioned masonry fort named San Severino was built there in the 17th century. In terms of defence, Matanzas was considered Havana's far eastern flank.



Plan of El Morro, the citadel of San Juan, Puerto Rico, in 1742. This extensive work guarding the entrance of San Juan's harbour was a unique example of fortification in the West Indies in the 18th century. The citadel was built against a cliff going from sea level to the top in five levels. There were gun positions at all levels, as can be seen in this plan. The most important artillery area was still the water level (top and outer left), with the Santa Barbara battery above acting as a cavalier. That battery also contained the gunner's quarters and storehouse. The rest of the cliff was still mainly in its natural state with the exception of the upper levels that featured the hornwork with its half-bastions. The batteries at sea level were considered too vulnerable, so during the second part of the 18th century, the citadel underwent a massive improvement programme that made it even more formidable, as the British discovered when they attacked in 1797. (Instituto de Historia y Cultura Militar, Madrid)



Cartagena de Indias and its surroundings, according to a British map of the siege of 1741. The city is to the left. To access its large inner harbour, ships had to enter a narrow channel at Boccachica (lower right) and sail into a large inland bay until they came to the other narrow channel guarded by the Castillo Grande that led into the inner harbour. The camp where so many British and American soldiers died of fever was near the swampy area at Boccachica. Access by the narrow Boccagrande channel south of the city was not usually possible as it was often silted up. A fort was nevertheless later built there. (Author's collection)

In many ways, Havana seemed an impregnable and imposing fortress with its three forts and other secondary works on the coast. It had a population of some 30,000 and was also the home of the largest garrison in the Spanish Main. Its fortifications had had no major improvements since the late 17th century when, in June 1762, 200 British ships bearing 11,000 troops appeared off Morro Castle. The city's 6,000 defenders, half of them militiamen, put up a valiant if hopeless defence as they could expect no relief or reinforcements. Once the British occupied the high barren grounds of La Cabaña behind Morro Castle, they bombarded that fort into submission and then bombarded the city until Havana itself surrendered on 11 August. Havana remained under the British flag until returned to Spain by the 1763 Treaty of Paris.

San Juan, **Puerto Rico**, was not the scene of massive construction during this period although work continued on the city walls until 1678. El Morro was also steadily improved and, during the 1670s, a small stone fort was erected on the little island at the harbour's entrance. It was officially called San Juan de la Cruz but is far better known as El Cañuelo.

The various forts and the walls of **Cartagena de Indias** did not stop a large French force under the Baron de Pointis from capturing the town in 1697. It was a major disappointment to the Spanish authorities, which sought ways to improve the defences. One of Spain's best engineers, Juan de Herrera y Sotomayor, was called upon to consider the options. He decided to reconstruct part of the works, concentrating on the southern sector, which was considered the most vulnerable. The Bocagrande entrance was blocked and allowed to silt up, leaving the Bocachica entrance as the only access into the bays leading to the city further north. Fort Bocachica, which had been heavily damaged in the 1697 fighting, was repaired and improved from 1719 to 1725. Fort San José was built across from it between 1714 and 1725. Three shore batteries – San Felipe, Santiago and Bombas – were also erected on the Tierrabomba peninsula just north of Fort Bocachica. They were designed to engage enemy ships even before they came into the range of the forts at the Bocachica entrance. Other forts further inland remained as depots, but were not primary defences. If the enemy finally got through Bocachica and into the inner harbour, he still had to face Cartagena de India's walls with its many batteries, as well as the citadel of San Felipe de Barajas.

In March 1741 some 180 British vessels, including 36 warships, came into the city's view. Admiral Edward Vernon's powerful force managed to land and eventually captured the forts at Bocachica, but found very stiff resistance on the part of Governor Blas de Leso, a one-eyed veteran of many battles. Legions of mosquitoes helped destroy the British force by spreading deadly fevers and

sending thousands of men to their graves. A failed assault on the citadel of San Felipe de Barajas in late April confirmed an increasingly disastrous siege and Vernon sailed shortly thereafter. Although flushed with such an outstanding victory, the Spanish set about reinforcing Cartagena. In the 1750s, the fortifications of the Bocachica sector were dismantled and rebuilt more strongly, with the addition of three new forts – Santa Barbara, San José and San Fernando – whose multiple batteries ensured point-blank fire on enemy warships.

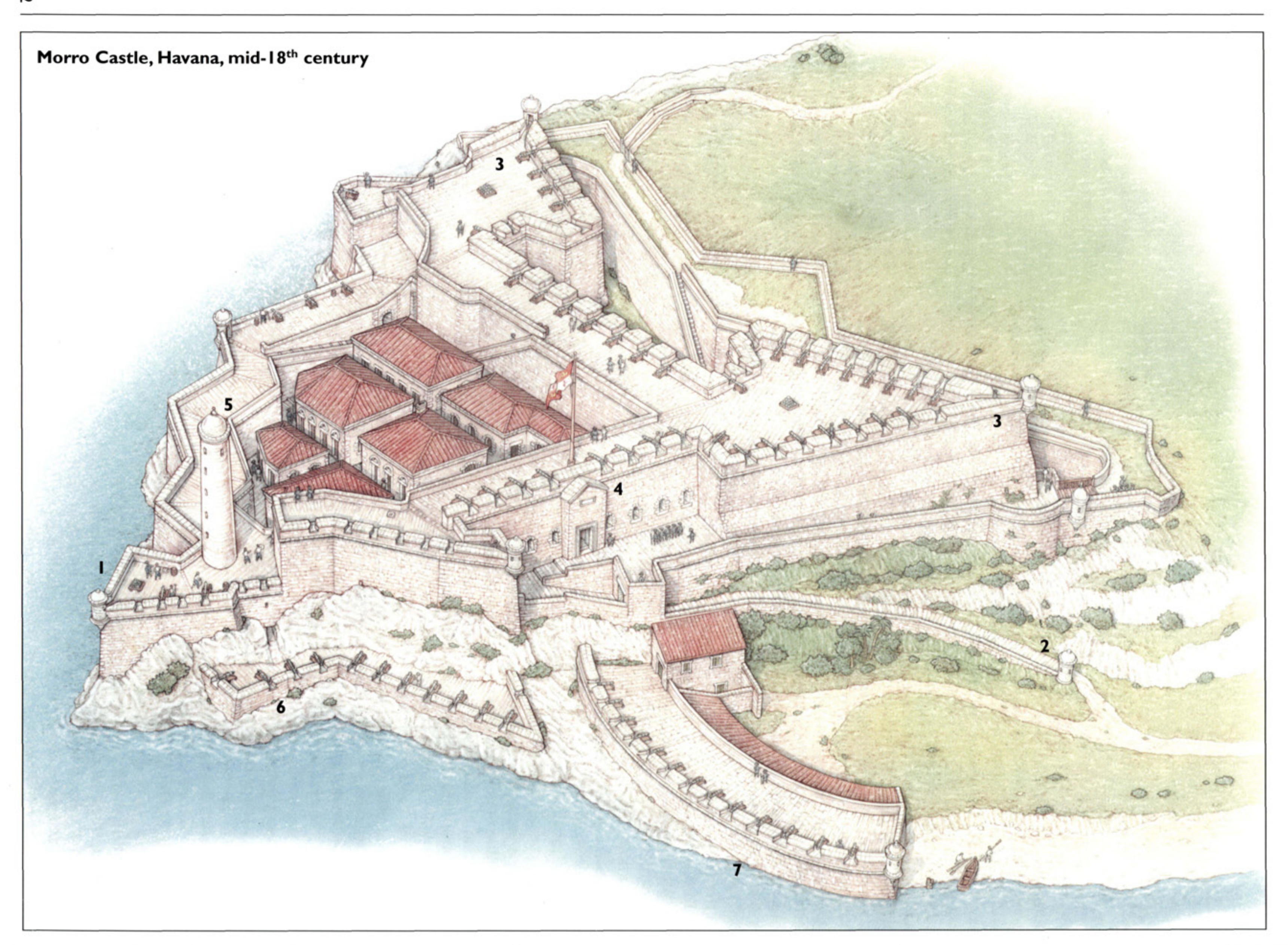
The fortifications of **Veracruz** seemed sufficient until 1683, when a large Dutch force attacked and sacked the town without encountering much resistance. Worse still, the Dutch seized the contents of the treasure fleet that had not yet left Veracruz for Havana. The Spanish authorities in Mexico and in Spain were highly annoyed at this raid and more resources were now made available to complete the fort of San Juan de Ulua. It had not changed a great deal since the end of the 16th century and still basically consisted of two large towers connected by a wide wall. It was now to be made wider, on a more rectangular plan. Because of its low-lying situation on a sandy island, the work proved extremely difficult and sometimes went on day and night, but in September 1692, the enlarged fort was finally inaugurated. It was mounted with over 100 guns.

In spite of all this, Father Carelli, an Italian traveller, was not overly impressed with the defences of the city he saw five years later. The citadel of San Juan de Ulua was indeed very strong, but its artillery could do little to protect Veracruz itself as it was too far away. The city's walls were not very wide and were less than 2m high so 'that [they] could be barely used as a covered way.' It was useless to close the city gates according to Father Carelli, since sand had been blown in as high as the rampart in many places and one could easily walk over it. All the same, he was impressed by the smart appearance of the garrison's two infantry companies and a 'company of sixty horsemen' that patrolled the coast. The area's settlement and population had greatly increased in the last century and this would allow the numerous militias in the area to be mobilized and reinforcements to be sent. As a result, the city's walls were not greatly upgraded thereafter. On the other hand, the Spanish authorities soon felt that more improvements were needed at the citadel of San Juan de Ulua and additional work went on there until 1712. In 1762, the entry of Spain into war with Britain, combined with the fall of Havana, caused further alarm for Veracruz's safety. Thousands of militiamen were mustered to bolster the garrison's few hundred regulars and put the fortifications in a state of readiness, notably with the reconstruction of the San José platform in the citadel of San Juan de Ulua.

The Yucatán peninsula in Mexico developed increasingly prosperous coastal towns during the 17th century. The main centre was **Campeche**, which occasionally harboured part of the treasure fleet. It was thus a target for pirates and, in 1663, they devastated the town. In 1685, French corsairs captured and practically razed the undefended town. The outraged inhabitants complained bitterly to the viceroy, and the Crown agreed to build fortifications to protect Campeche. The construction of the ramparts, which took the form of an irregular pentagon with eight bastions, began in January 1686

An officer of the Spanish Real Cuerpo de Engenieros, *c.* 1751. From the early 18th century, military engineers in Spain and in 'the Indies' were formed into the Royal Corps of Engineers. It was one of the finest engineering corps to be found anywhere and it was especially proficient at fortifications design. The engineers were assigned a blue uniform with scarlet facings, lavishly trimmed with silver lace and buttons. (Archivo General de Simancas)





Morro Castle, Havana, mid-18th century

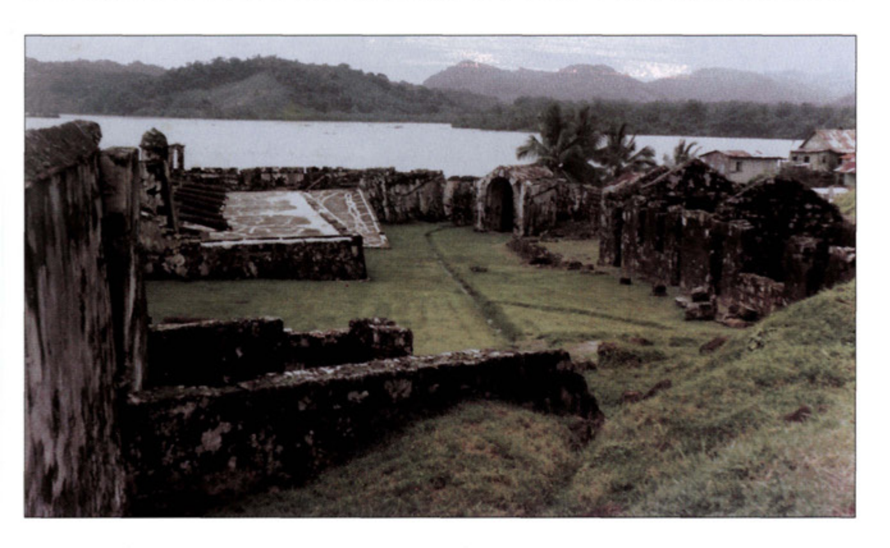
LEFT **Morro Castle, Havana, mid-18th century**
Morro Castle is probably the most famous of all the forts in the Spanish Main, and has been the sentinel to Havana's harbour since construction began in 1589, a direct consequence of the fortification plan approved by King Felipe II the previous year. The "Castillo de los Tres Reyes Magos de El Morro" (the Morro Castle of the Three Wise Kings) was designed by the engineer Bautista Antonelli. It was inaugurated in 1629 and finished the following year.

Morro Castle was built on the height at the rocky eastern side of the harbour's entrance and its thick walls follow the rock's shape, forming a massive redoubt on the point, which it covers in the form of an irregular polygon (**1**). The interior had casemates under some of its wide walls. The centre was covered with ordinary buildings used as quarters and stores for the garrison and its dependents. Entry into the fort is through a small gate accessed by a narrow and well-covered path at the south curtain wall (**2**). The landward side to the east is protected by two large demi-bastions on each side of the peninsula (**3**), which are connected by a curtain wall. In front of this are a ditch and a ravelin. The ditch extends along the south curtain wall to the gate (**4**). The British heavily damaged this area during the 1762 siege. Morro Castle was repaired essentially on its original plan after 1763. On the point, in front of the fort, is its very scenic tower (**5**) nicknamed 'La Torre Blanca' (White Tower). This is one of Havana's oldest features. Sentinels were posted there to watch for ships probably before 1551 and, by 1581, a 'white' watchtower had been built there. In 1583, a small four-gun battery was built near the tower. The tower was incorporated in the design of Morro Castle. It became a lighthouse in 1764.

Below the fort at water level was a 12-gun battery that covered the harbour's entrance (**6**), named 'Los Doze Apostolos' (the Twelve Apostles). The design of this battery had sharp angles and it was below the front part of the fort. By 1739, it was considered "useless" and the new 'Divina Pastora' (Divine Pastor) 13-gun battery was built in the form of a wide arc just behind the old dismantled battery (**7**). The Velasco battery was also added further to the south-east.

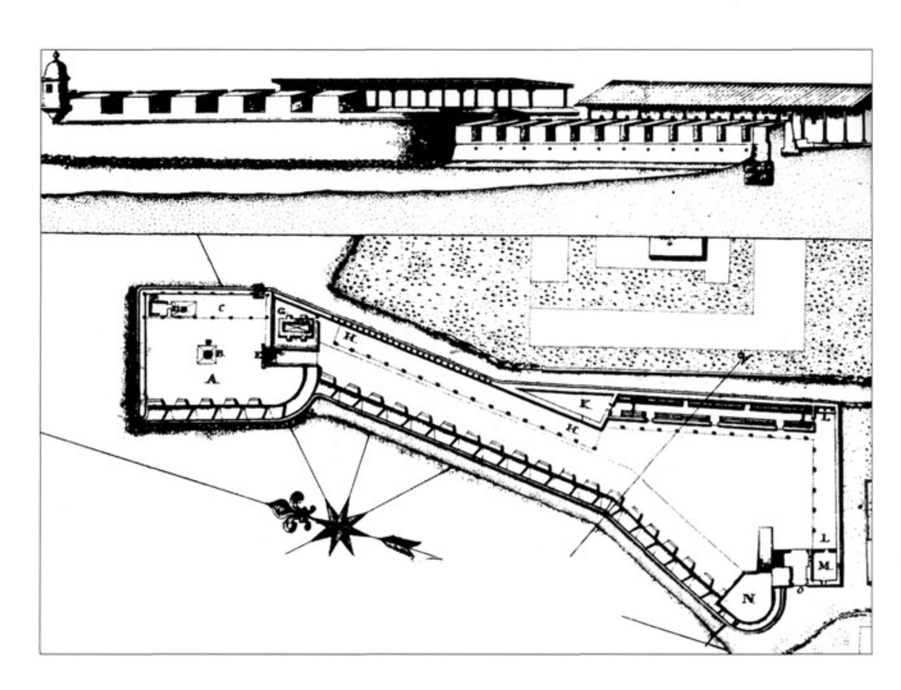
and was finished in 1704. The walls and bastions mounted some 92 guns, which secured the town against any substantial future attacks. Campeche became the military command centre for Yucatán. Elsewhere in the peninsula, the Isla de Carmen became an important post in the 18th century and Fort San Felipe de Bacalar was started in 1727 replacing older wood and earth fortifications.

English buccaneers crossed the isthmus of Darien and took a town named Santa Maria with its stockaded fort in April 1680. A few years later, in May 1686, it was the town of Leon in Nicaragua that was overrun, but this time the pirates fought a long engagement with a Spanish squadron that came to the rescue. Small raids by isolated groups were common at this time, so substantial forts were built or rebuilt in various Central American locations during this period. In **Honduras**, Fort San Fernando de Omoa was built from 1720, Penten Itza in 1724, and San Felipe del Golfo Dulce, Trujillo and San Tomas in the mid-18th century to control the English within the coast of Belize. From 1756, the standard design with four bastions was modified at San Fernando de Omoa to three large fan-like bastions facing land. Following two sackings of Grenada in



The high battery of Fort San Jeromino, Portobello. The 18th-century Spanish iron guns are still there but without carriages. The original artillery in Portobello's forts was either seized by Admiral Vernon in 1739 if made of brass, or rendered useless by breaking a trunion off in the case of iron cannons. These naval iron guns were almost certainly those mounted in the reconstructed fort during the 1750s. (Author's photo)

Plan of Fort San Jeromino in Portobello. Although drafted in 1760, this plan shows the expanded version of the fort originally designed by Bautista Antonelli over a century and a half earlier. At top is the fort's profile up to the middle of the lower battery. At bottom is the plan of the whole fort. Its southern end (right) had the gate flanked by a small rounded redoubt. The lower battery had embrasures for 19 cannons. The northern end was the high battery, which formed a square redoubt with five embrasures. (Author's collection)



Nicaragua by corsairs in the 1660s, Fort San Juan de Nicaragua was built near Lake Nicaragua to stop incursions up the San Juan River. By the 18th century it had a rectangular plan with bastions.

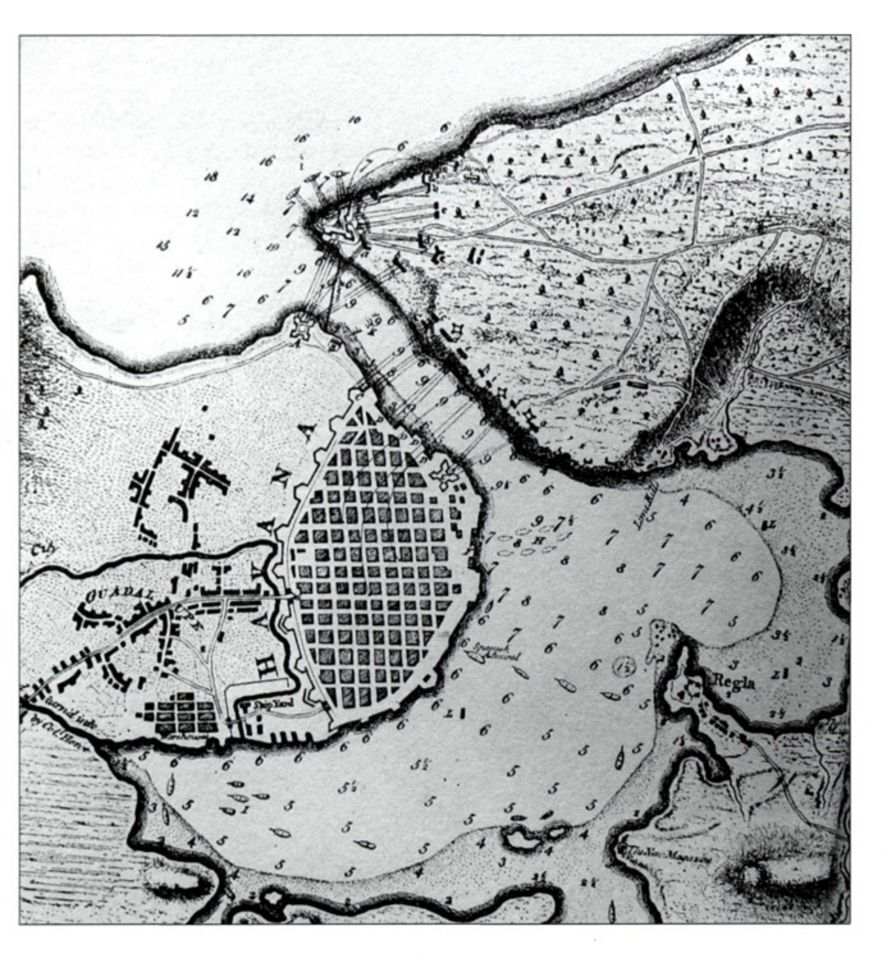
After Captain Morgan's 1668 attack, **Portobello**'s forts remained in bad repair. In 1678, the town was attacked by Coxton and La Sonda, and in 1679 English buccaneers demanded 100,000 ducats in ransom. The successive raids discouraged its inhabitants, who gradually left the place. The main forts were now San Jeromino, Gloria and the Iron Castle. It was only a small town when British Admiral Hoster took it in 1726, followed by Admiral Vernon in November 1739. Vernon had the forts 'blown up and entirely demolished', weakening further what remained of the town's defences, but he could only obtain a ransom of 10,000 ducats, an indication of the town's steady decline. A garrison was still posted there, but the security of the treasure sent from Panama now clearly lay in its powerful escort and the strength of the naval squadron that picked it up in Portobello. The one fort that remained viable was that of San Jeromino. From 1753 to 1759 it was restored and expanded to have 24 guns mounted on two levels rather than a battery of 18 cannons. Its shape as a wide shore battery ending with a rectangular redoubt remained essentially the same as designed by Antonelli over a century and a half earlier.

Fort Chagres was assaulted by English pirates sent by Henry Morgan in January 1671. When attacked, it was 'surrounded with palisades filled with earth'. Fire erupted in the fort and the powder magazine accidentally blew up, killing the governor and most of the garrison, as well as many pirates including their leader, Capt. Joseph Brodley. A masonry fort was rebuilt there from 1680, its main features being its two bastions facing the sea supported by upper-level works. It was attacked by Admiral Vernon and surrendered after a day's bombardment on 24 March 1740. Vernon had two mines 'sprung to blow up some of the upper parts of the works' and set fire to 'all the inner buildings in the castle', which destroyed it. It remained in ruins until 1761, when it was again rebuilt. This time, the lower area was built as a long battery mostly facing the Chagres River with two small bastions connected by a curtain wall guarding the upper landward flank. The fort was not attacked again and appears to have been abandoned in the 1820s.

Panama, the target of one of the most famous events in the history of piracy, was basically an undefended town. Apart from the walled Casas Reales

and some small forts at its edges, it had no defence works and was an open city. When Captain Henry Morgan neared the city in February 1671, the troops and the militia battled the army of pirates outside but were beaten and Panama was taken in spite of some hastily dug trenches and batteries. Following the sack and partial destruction of the city, it was decided to abandon its original site and rebuild the town at a new site about five kilometres west. Plans were drawn up by engineers Juan de Betin and Bernaddo Ceballo and the construction of the new city was inaugurated on 21 January 1673. It went on during the 1670s and 1680s. Nevertheless, the town remained a fabled target for corsairs, even during its reconstruction, and in 1680 suffered a six-month blockade by English *filibusteros*. However, the new city had stronger fortifications, as a masonry rampart with a ditch now protected it. The walls, which featured a number of bastions, were finished in 1686. Although built at considerable expense, there was no citadel but, in terms of defence, it was an enormous improvement. A sizeable number of regular troops were also in garrison. Panama City was not attacked again.

In 1680 **La Guaira**, the port of Caracas, had two forts armed with 44 guns, but was nevertheless taken by French buccaneer corsairs from Haiti. On learning that some 2,000 Spanish troops were marching from Caracas, they retreated after blowing up the forts and spiking the guns but sparing the town. Thereafter, more forts were built on the Caribbean coast of South America, the main works concentrating at La Guaira and especially at Puerto Cabello, where, from 1729, the large fort of San Felipe was built. In February 1743 a British squadron was repulsed at La Guaira, and in April was equally unsuccessful against Puerto Cabello, losing some 600 killed and wounded in these failed



British map of the siege of Havana in 1762. As can be seen, the heights across the channel north of the city provided ideal sites for the British batteries to bombard the city and its two forts. They also isolated Morro Castle and pounded it until it surrendered. There had been previous wood and earth works, but the city's stone walls were started in 1674. Construction went on, with various refinements, until 1797. The walls were 10m high, extended in an arc of some 4.5km and had 180 guns. (Author's collection)

RIGHT **Drawbridge, St Augustine, Florida, *c.*1740**
Most drawbridges installed in forts were complicated pieces of machinery designed to open and close very heavy parts of bridges and gates by counterweight. The mechanism installed at St Augustine was typical of this type of manually operated technology. To lift the heavy drawbridge, a few soldiers would push open the floor trapdoors at the gate revealing a windlass with holes. With sturdy poles, the soldiers turned the windlass (**1**), each end of which connected to lifting drums above (**2**). This released the chains holding the counterweights (**3**), which started to come down and the drawbridge started to rise. As the men continued to winch the windlass, the counterweights went down further and the drawbridge rose until the fort's entrance was shut. For added security, soldiers then rolled the heavy portcullis gate across the way (**4**).

raids. Various secondary works also went up at Maracaibo, Cumana, Margarita and Trinidad, and regular garrisons were reinforced, making the whole coast much more secure during the 18th century.

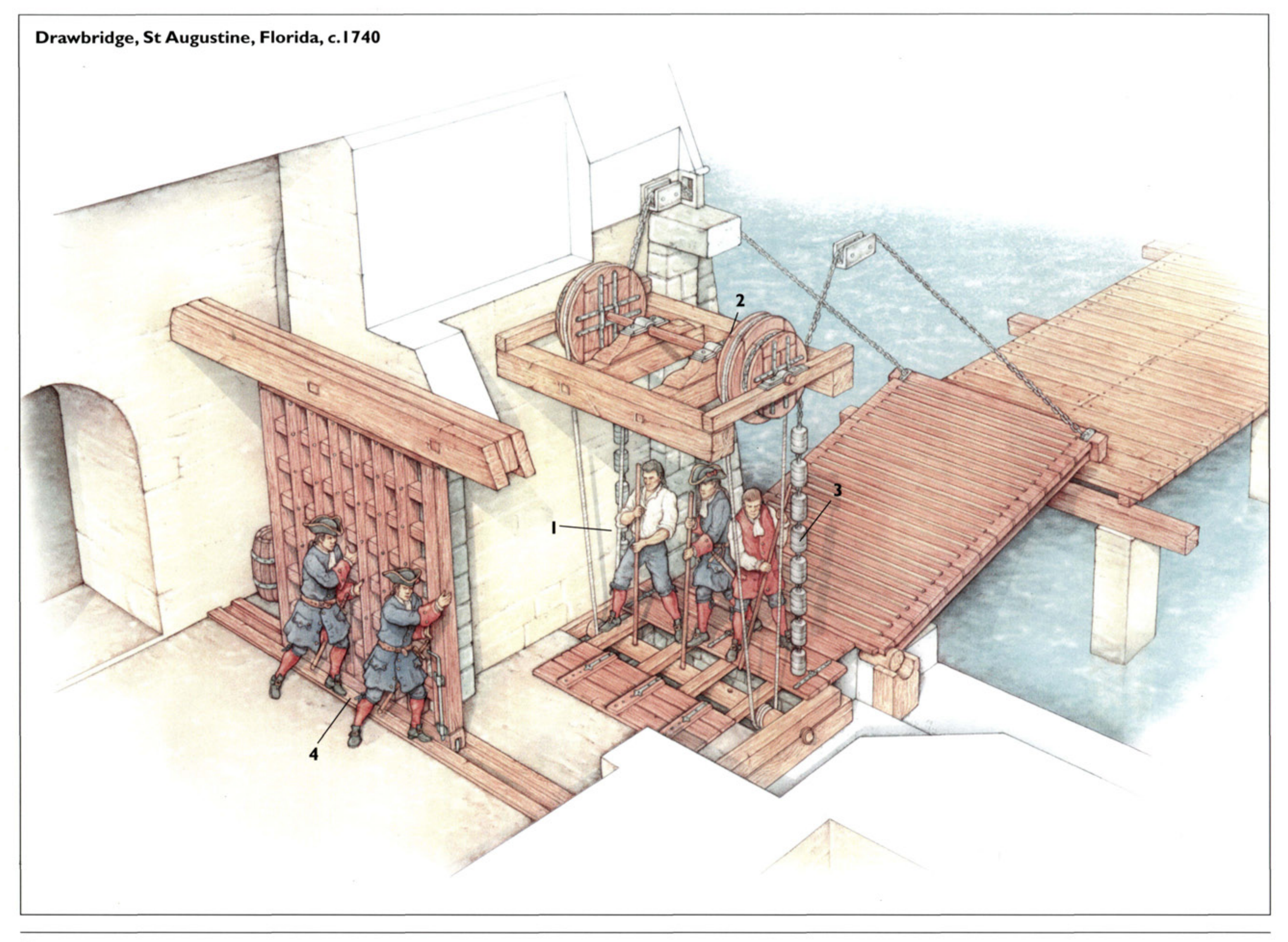
St Augustine in Florida was the site of another large construction project. Although an important area in terms of the treasure fleet, the fort at St Augustine was still a weak timber and earth affair some 80 years after having been identified as a prime area for a substantial and powerful fort. By the late 17th century, the English were moving south from Virginia along the coast and settling in South Carolina. The Spanish attempted to raid the new settlement of Charleston in 1670, but failed in the attempt. At the same time, the Bahamas were also being colonized by small groups of Englishmen who founded the town of Nassau in 1666, soon to become a hub for pirates and freebooters. Somewhat further to the south-east, the mostly French buccaneers spread along the coast of Haiti. Piratical activity thus increased and, on 29 May 1668, the town of St Augustine was captured by John Davis, 'an English pirate' who 'invaded this place with no trouble' according to the governor; some inhabitants were killed and others fled into the woods. The feeble garrison managed to resist the pirates' assault in the rickety fort, but the town was sacked and largely destroyed. The raid revealed to all the utterly weak and famished shadow of a garrison that went ragged and unpaid for years in a crumbling fort on the Bahamas Channel – the highway of the treasure fleets!

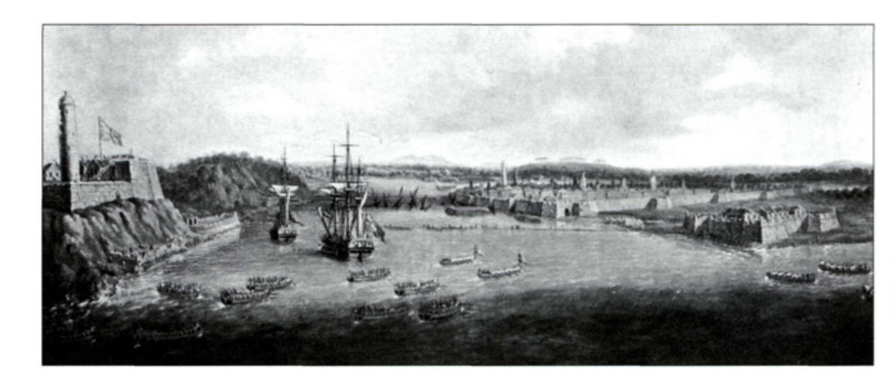
In response, construction started at St Augustine in 1672 on the Castillo de San Marcos, a masonry fort built on a square plan with large bastions at each corner. Work progressed slowly because of labour and supply shortages. Most



The guns of Morro Castle in Havana proved to be quite a match for the British squadron when it started its bombardment on 1 July 1762. The ships-of-the-line and the fort exchanged a blazing fire for six hours. The British ships were all severely pounded: the decks of HMS *Dragon* were awash with sailors' blood according to its captain. HMS *Gloucester* was heavily damaged and began to list. At that point, Admiral Sir George Pocock withdrew the ships. Damage and casualties had also been substantial inside Morro Castle and Captain-General Juan del Prado rushed a reinforcement of over 550 naval officers and sailors with new artillery carriages to the fort. (Painting by R. Monleon, Museo Naval, Madrid/author's collection)

Drawbridge, St Augustine, Florida, c.1740





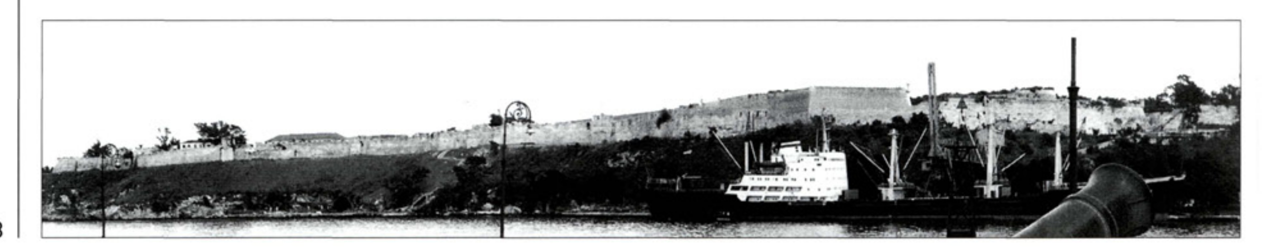
Havana in 1762, as seen in a print after Dominic Serres, an artist with the British expedition that took the city. It offers a remarkable view of Havana's defences as they were at the time of the British siege. To the left is Morro Castle, which guarded the eastern outer entrance leading to the narrow channel and the city's bay-like harbour. Below Morro Castle, a shore battery can be seen to provide extra firepower. Across the channel to the right, the *Punta* (or Point) fort guarding the western side to provide crossfire and also act as a forward citadel in front of the city walls (in the background). It was built according to the plans of Bautista Antonelli between 1590 and 1630. The Spanish defenders had placed a boom and sunk a number of vessels at the narrowest point of the channel to block British ships. Also visible is the wilderness area behind Morro Castle that proved to be the city's Achilles heel. (Author's collection)

of the labour force consisted of soldiers of the garrison and local Indians, all of whom were paid for their work on the new fort. In 1675, after a hurricane destroyed the old wooden fort, the priority was given to finish the San Carlos bastion, which became the interim fort. By 1684–85, the curtain walls and other bastions were up and the interior rooms being finished. After some interruptions work continued on the outworks of Castillo San Marcos, which was finished in 1695.

In the meantime, English and French pressure on Spanish Florida became greater. Corsairs raided San Marcos de Apalache (a secondary wooden fort and mission built on the Gulf Coast in 1672) in 1677 and 1682, the same year that French corsairs attacked undefended Matanzas south of St Augustine. English corsairs took Matanzas again in 1683, as well as several small villages. In 1686 the Spanish mounted a successful raid on Port Royal, South Carolina. In the 1690s English-led Indians overcame several Spanish missions in present-day Alabama and West Florida. In 1702 and 1740 strong English forces besieged Castillo San Marcos without success. In 1742 a masonry watchtower mounted with artillery was built at Matanzas. Thereafter, during the 1750s, the inside of the Castillo de San Marcos was improved by making the interior rooms larger and bombproof.

As the 17th century ended Florida was also threatened from the Gulf Coast. The French explorer Robert Cavelier de La Salle had claimed the Mississippi Valley for King Louis XIV of France and named the area Louisiane (Louisiana). A French outpost was established at Biloxi (Mississippi) in 1699, followed by several more, including a fort at Mobile (Alabama). To counter the growing French pressure, a *presidio* manned by a regular garrison of 170 men (including 20 gunners) was built at Pensacola in late 1698, so as to secure the area and create a border of sorts with the French. There was no stone, and a fort consisting of a 'quadrangle of logs' was put up. In the early years, the French in Mobile actually sent men to help the Pensacola garrison resist Indian attacks. Nevertheless, French pressure on West Florida would continue into the 18th century and, in May 1719, they captured Pensacola. A Spanish force from Havana recaptured Pensacola in August but the French came back, took it again and held it until 1722 when the place was returned to Spain by treaty. In 1763, as a result of the Treaty of Paris, all of Spanish Florida was ceded to Great Britain, while French Louisiana was ceded to Spain.

This image gives an idea of the enormous citadel of San Carlos de la Cabaña in Havana, the largest in the Americas. Designed by the French engineers De La Vallière and Ricaud de Targale, it was built under the direction of Silvestre Albarca of the Spanish Royal Engineers from 1763 to 1774. Its walls, which dwarf the large freighter coming in below, dominate nearly the whole length of the narrow entrance into the city's inner harbour. The cannons of the old Fort de la Fuerza Real on the opposite side, one of which is visible in the lower right, would provide a murderous crossfire in the unlikely event that an enemy ship should penetrate that far. (Author's photo)



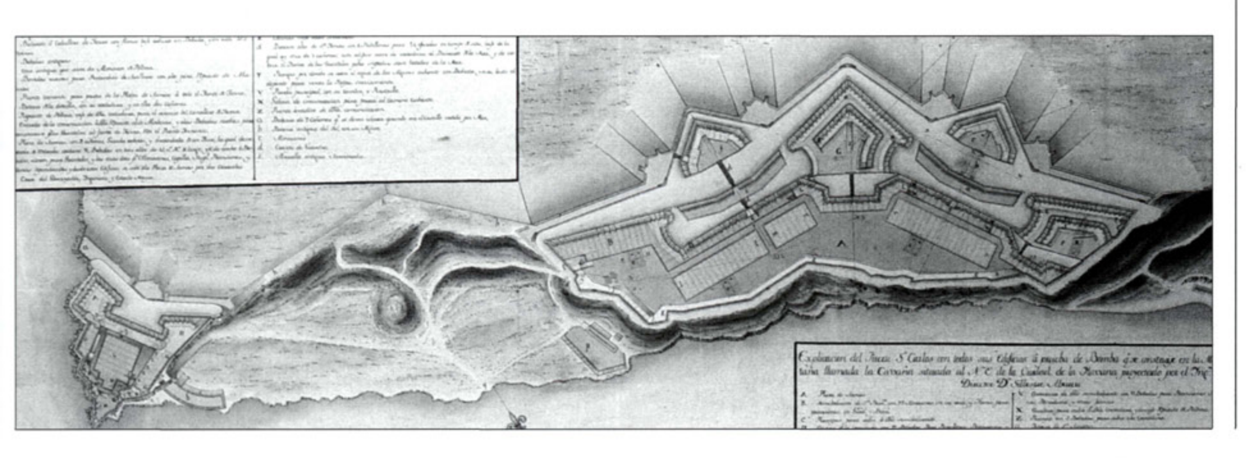
Renewal of the fortification system from 1763

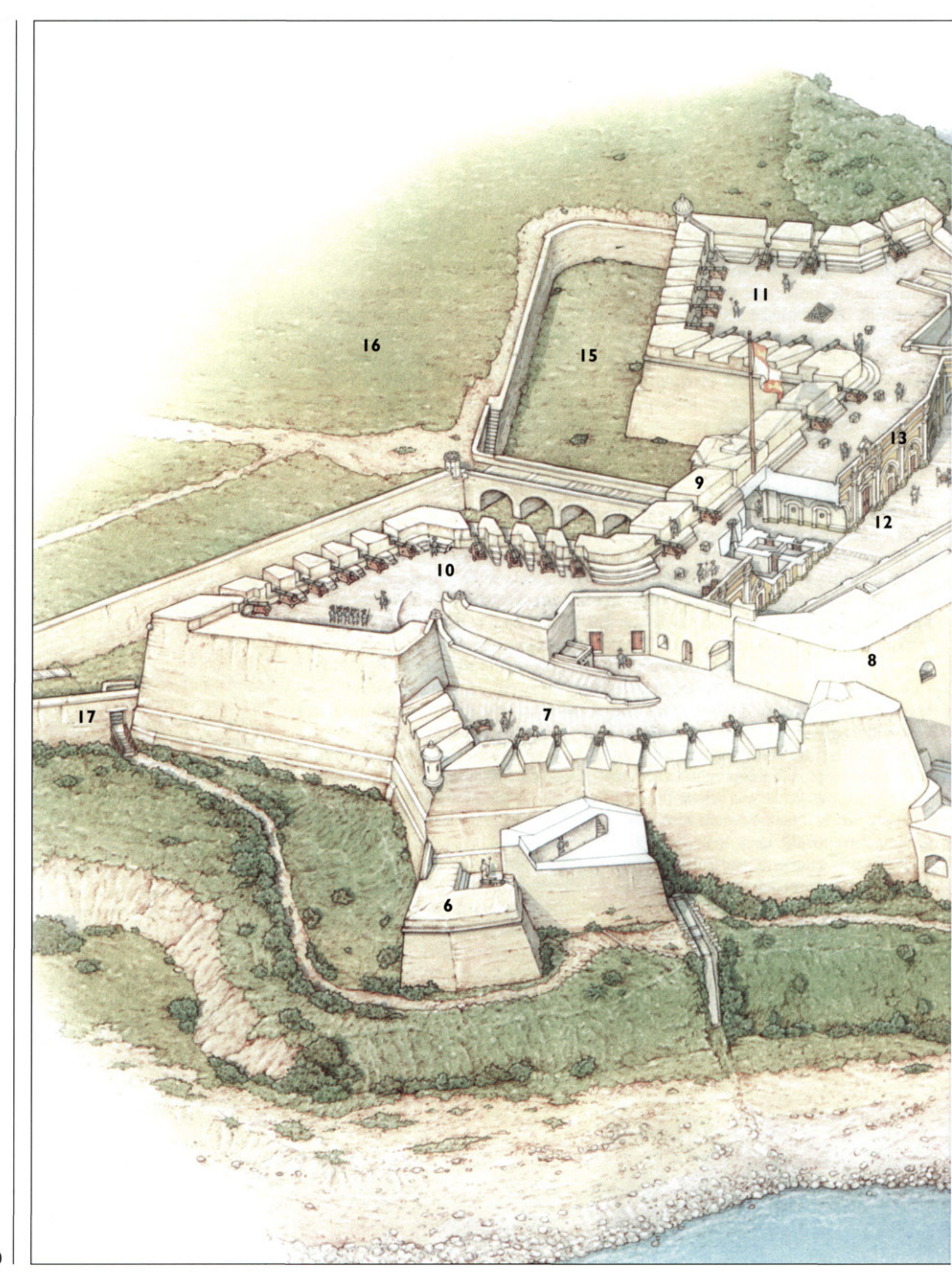
The fall of Havana and Manila (in the Philippines) to the British in 1762 caused a shock wave at the Spanish court. King Carlos III, one of the more enlightened rulers of 18th-century Europe, immediately initiated a vast programme of reforms in the empire. Enormous sums of money were allocated to fortifications. In the Spanish Main, Havana and Puerto Rico were the priorities, followed by Cartagena de Indias and Veracruz. Many forts in secondary areas were also built or rebuilt. The armed forces were reorganized and reinforced. The principle of routinely detaching metropolitan regiments to the colonies in peacetime was adopted. The colonial auxiliary forces were given a new structure that created well-armed and uniformed 'disciplined militias' which trained for several weeks every year and were liable to be embodied and paid in peacetime service. The Havana Militia Regulations drafted in 1763–64 were the model adopted for disciplined and provincial militias in other colonies during the 1760s and 1770s. Allied to these reforms was a substantial reinforcement of the Spanish navy.

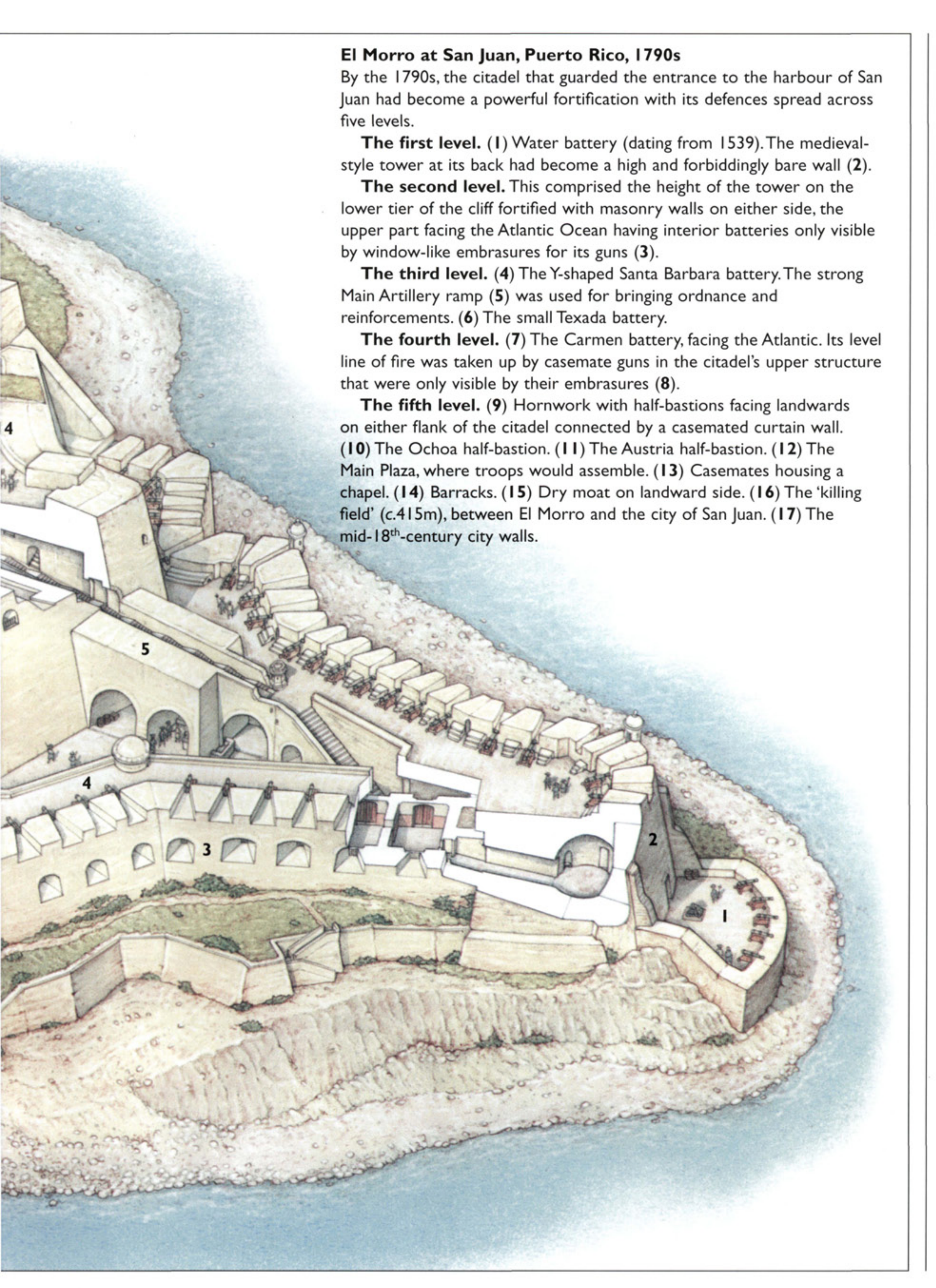
Havana was returned to Spain in 1763 and immediately became the centre of a huge fortification programme. General Alejandro O'Reilly was sent to Havana with a suite of staff officers and engineers to reform and improve its defences and reorganize the military forces of the Spanish Main. Having studied the weaknesses evident during the siege of 1762, the engineers made a series of suggestions and plans that were nearly all approved at once. The most urgent area concerned the unoccupied heights of La Cabaña, where the British had installed their batteries to pound the city into submission. Clearly this area was the key to the city and had to be protected. Construction of an enormous citadel named San Carlos de La Cabaña began in 1763. It consisted of very large demi-bastions, bastions and ravelins with a maze of ditches, glacis and outworks on the landward side, with a vast and very long rampart covering the narrow channel leading into Havana's harbour. This huge work, covering 12.3 hectares, was finished in 1774 at a cost of 60 million pesos, a fabulous sum at the time. It was the largest fort in America and it occupied the whole area where the British had built their batteries. To take the city, any future attacker would first have to capture this giant citadel, a daunting and near-impossible task.

While the citadel at La Cabaña was being built, the new Castillo de Santo Domingo de Atares, a five-pointed star fort complete with outer ravelins, ditches and glacis, was also going up outside the city's ramparts west of Havana. Naturally, the three older forts and the city walls also underwent substantial

Plan of the citadel of San Carlos de la Cabaña (marked A) in 1771. A complex network of bastions, ravelins, ditches and glacis with a maze of supporting works protected the landward side, making the place next to impregnable. The side facing the channel leading into the harbour was a high and steep wall (not apparent on the plan). Note the great size of the citadel compared to Morro Castle (left). (Instituto de Historia y Cultura Militar, Madrid)




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El Morro at San Juan, Puerto Rico, 1790s

By the 1790s, the citadel that guarded the entrance to the harbour of San Juan had become a powerful fortification with its defences spread across five levels.

The first level. (**1**) Water battery (dating from 1539). The medieval-style tower at its back had become a high and forbiddingly bare wall (**2**).

The second level. This comprised the height of the tower on the lower tier of the cliff fortified with masonry walls on either side, the upper part facing the Atlantic Ocean having interior batteries only visible by window-like embrasures for its guns (**3**).

The third level. (**4**) The Y-shaped Santa Barbara battery. The strong Main Artillery ramp (**5**) was used for bringing ordnance and reinforcements. (**6**) The small Texada battery.

The fourth level. (**7**) The Carmen battery, facing the Atlantic. Its level line of fire was taken up by casemate guns in the citadel's upper structure that were only visible by their embrasures (**8**).

The fifth level. (**9**) Hornwork with half-bastions facing landwards on either flank of the citadel connected by a casemated curtain wall. (**10**) The Ochoa half-bastion. (**11**) The Austria half-bastion. (**12**) The Main Plaza, where troops would assemble. (**13**) Casemates housing a chapel. (**14**) Barracks. (**15**) Dry moat on landward side. (**16**) The 'killing field' (*c.*415m), between El Morro and the city of San Juan. (**17**) The mid-18th-century city walls.

repairs. The garrison was augmented and the militia modernized. By 1775, there can be no doubt that Havana was the strongest city in America.

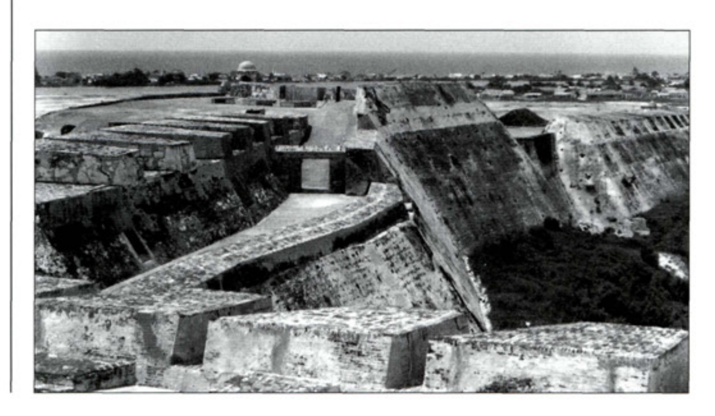
San Juan, Puerto Rico, was also to be upgraded with new and improved fortifications. Once he had finished the reforms in Cuba, General O'Reilly went to Puerto Rico, arriving at San Juan in April 1765. Within six weeks, the governor, Chief Engineer Col. Thomas O'Daly, and his staff officers had drafted plans to radically improve the fortifications, as well as the regular troops and the militias of Puerto Rico in general, and San Juan in particular. O'Reilly recommended that, because of its strategic situation, San Juan be made a defensive position 'of the first order' as the bastion, base and depot for the naval and military forces in the eastern Caribbean. Royal approval was given on 26 December 1765, and work started on building the San Cristobal line of fortifications to protect the vulnerable east side of the city. This was an enormous complex (the second largest built in America), which spread over 11 hectares and included a citadel. Work went on at San Cristobal until 1783. A second line of defence 1.6km east of San Cristobal was constructed at Escabron. Improvements on the citadel of El Morro were completed in 1790. In April 1797, a British fleet with 7,000 troops under the command of Sir Ralph Abercromby attacked San Juan. Its fortifications were so strong that the British landed far to the east and never got past the Escabron line of defence. The garrison, ably led by Governor Ramon de Castro, made daring sorties and raids that convinced Sir Ralph that his attack was futile. The British sailed away on 1 May. It was the last action at San Juan until 12 May 1898, when, in the now outclassed citadels of El Morro and San Cristobal, the garrison's gunners bravely duelled with US navy battleships during the Spanish–American War. Six months later, Puerto Rico was ceded by Spain to the United States.

Improvements to **Cartagena de Indias'** already extensive fortifications concentrated on the citadel and the north side of the city ramparts. From 1769 to 1798, the whole hill upon which the citadel of San Felipe de Barajas had been built in the 17th century was covered with fortifications, making it a most formidable stronghold. Within the city, a sector of the north-eastern ramparts was expanded between 1789 to 1795 with a long row of 47 vaulted bombproof galleries featuring a 2m-thick roof. Known as Las Bovedas, they were used as barracks for the garrison.

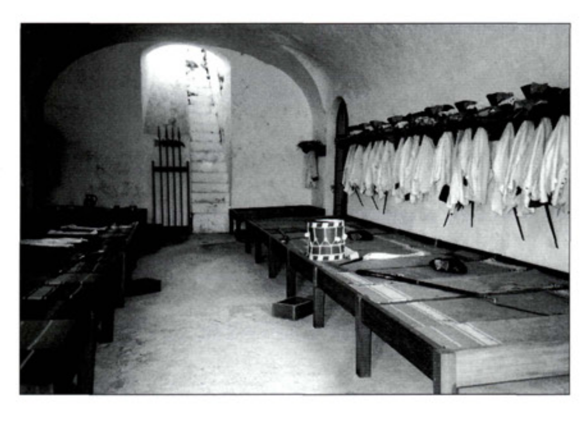
The citadel of San Juan de Ulua in **Veracruz** was one of the last sites to benefit from the fortifications programme. A number of improvement plans were made to both the citadel and the city from the late 1730s, but none of the projects were approved. Many of the proposals were quite ambitious and would have been unbearably expensive to carry out. In the 1760s, there were even plans submitted for totally rebuilding the city's walls and adding a huge bastioned citadel, akin to that of San Carlos de la Cabaña in Havana, which were of course rejected as unrealistic. Meanwhile, the citadel of San Juan de Ulua still featured fairly irregular ramparts with oddly shaped bastions. Finally, in October 1774, a plan to give the citadel regular Vauban-style bastions with moats and glacis was approved and built over the next few years. The island citadel's most important action came in 1825 when, from early January, its Spanish garrison held out against Mexican gunners using hot shot and Congreve rockets. The bombardments intensified and the trapped garrison finally surrendered and evacuated the fortress on 19 November, ending over three centuries of Spanish presence in Mexico.

In central Mexico, a large fort with four bastions was built at **Perote** between 1770 and 1777 to provide a redoubt should the coastal

A massive bastion of the San Felipe de Barajas citadel at Cartagena de Indias. Work on expanding the citadel to fortify San Lazaro hill started in 1762 and was completed in 1798. This notable maze of multi-level defences, then mounted with substantial artillery batteries, ensured that an assault on that part of the city was virtually suicidal. (Author's photo)



forts fall. The old fort at **Acapulco**, destroyed by a hurricane, was rebuilt on a much larger scale from 1778 to 1783.



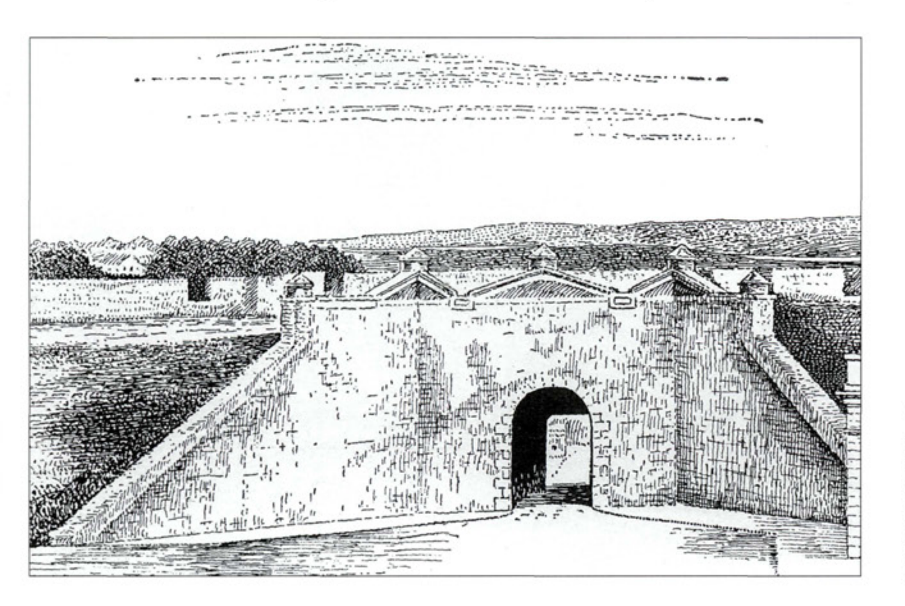
Barrack room in a casemate of Fort San Cristobal at San Juan, Puerto Rico, reconstructed as per the late 18th century. This part of the fortification was built between 1765 and 1772 and could house 212 troops in eight vaulted rooms like the one shown. Spanish army barrack room furnishings closely followed those of the French, which featured wide double bunks with forms and pegs fixed on the walls for hanging clothes and equipment. (Photo by José Manuel Guerrero Acosta)

The fortifications in the Yucatán Peninsula of Mexico were also bolstered. The walls of **Campeche**, the area's military headquarters, were sufficient to repulse pirates and corsairs, but were not equal to a siege by a combined naval and military force such as the British had deployed during the Seven Years War. By the late 1770s, war with Britain was looming again, and in 1779 the construction of Fort San Miguel was approved. It was situated outside the city on the west side and was intended to be Campeche's citadel. Most of the fort was built by 1781–82, with various improvements being made until 1801. It consisted of a large square bastioned fort located on a hill facing the sea. From 1792, four other batteries were built around the city, which increased its walls; Fort San Miguel made Campeche one of the best-fortified towns in Mexico.

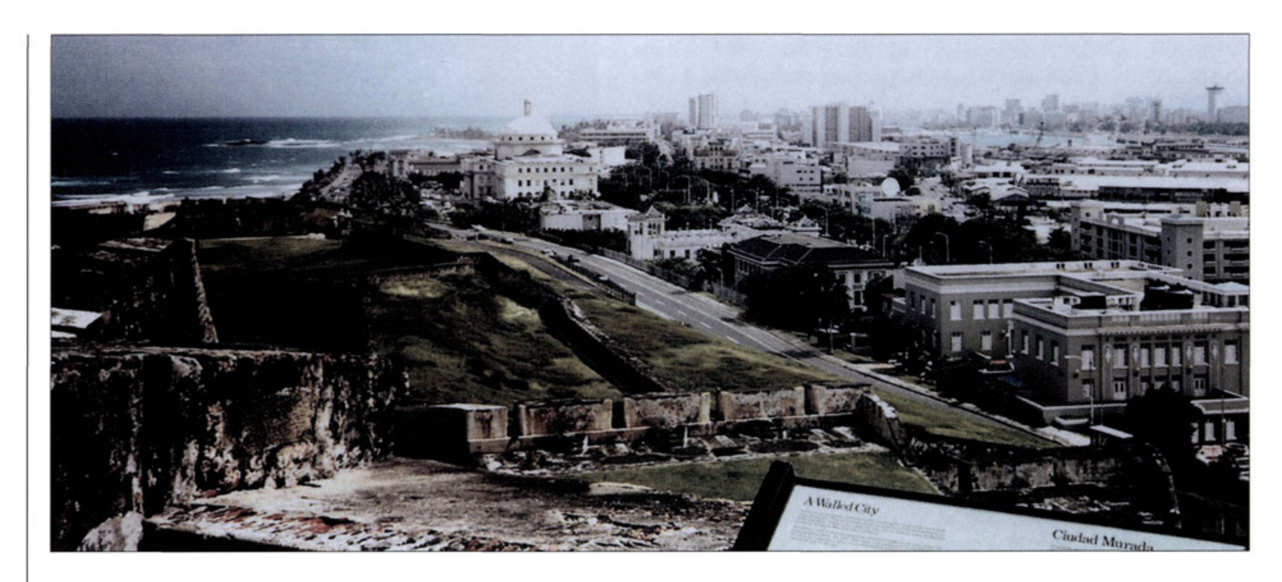
Forts on the coast of **Venezuela** were also upgraded from the 1760s, notably at Puerto Cabello, La Guaira and Cumana. Trinidad, however, was more isolated, and remained relatively weak; it was captured by the British in 1797. From the middle of the 18th century, the Spanish permanently settled the Darien Straits in spite of opposition by the Indians, and four small forts with garrisons detached from Panama were reported there in 1772.

The one place where there were no major works after 1763 was **Santo Domingo**. Even after improvements made by the French, who occupied the place from 1802 to 1809, an 1809 plan of the city shows basically the same outline of defences as in the 16th century, with some of the medieval-style western wall and square turrets still in place.

During the American War of Independence, troops led by Louisiana Governor Bernardo de Galvez took British West Florida, culminating in the capture of Pensacola in 1781. British forces attacked in Central America, taking forts Omoa and San Juan de Nicaragua, but they had to evacuate them in 1780. In the spring of 1782, the Spanish took Roatan but it was recaptured by the British in August. There were no other major engagements elsewhere in the Spanish Main during the war. Although Spanish defences seemed quite adequate, work continued on fortifications after the end of the war in 1783. The French Revolution brought a renewal of hostilities and, in 1797 the British



The Santiago Gate seen from inside the walls of the San Cristobal fortifications at San Juan, Puerto Rico. This led to the large Santiago Ravelin outside the walls. Begun in the 1760s, this gate was demolished in 1897. (Author's collection)



The maze of walls of Fort San Cristobal, which protected the western access to San Juan, Puerto Rico. It was designed and built under the supervision of engineer Col. Tomas O'Daly between 1765 and 1772. In 1797, it proved to be a formidable obstacle to the British, who failed in their attempt to capture the city. (Photo by José Manuel Guerrero Acosta)

captured poorly defended Trinidad after failing miserably in their siege of San Juan (Puerto Rico). By that time, over two centuries had passed since the 1588 plan had been approved. With the vast improvements made from 1763, the great forts of the Spanish Main seemed nearly impregnable. The world had changed a great deal since the days of the freebooters of the 16th century; pirates had long since vanished, treasure fleets heavily escorted by large warships had lost much of their appeal, and fortunes were being made in sugar, in world trade and in the raw materials for the nascent industrial revolution.

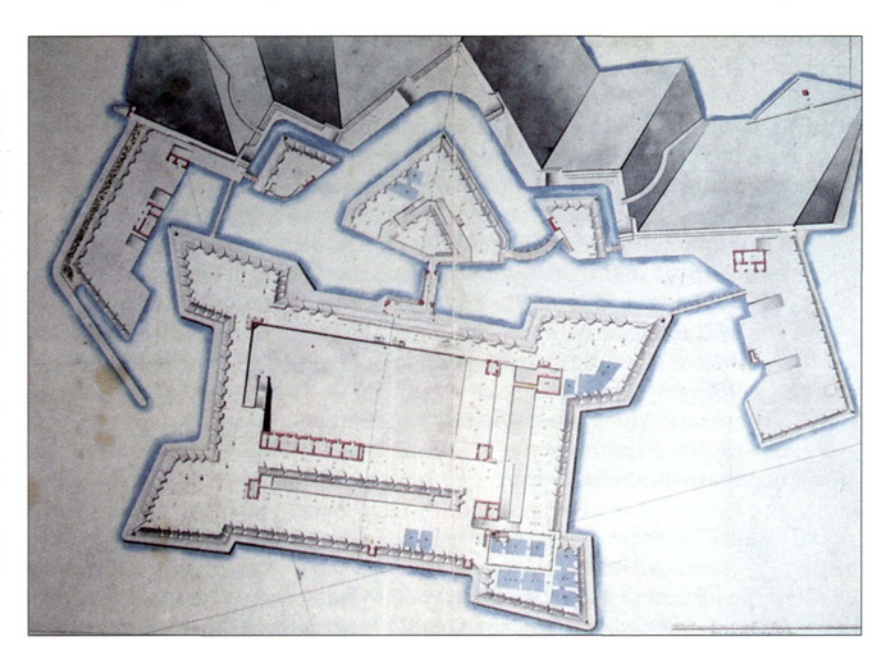


Plan of the city of Santo Domingo in 1772. The 16th-century fortifications still protect the western, southern and eastern sides of the city and the square turrets are still in place. The expansion of the city stretched northwards, protected by a wall punctuated by small bastions. (Instituto de Historia y de Cultura Militar, Madrid)

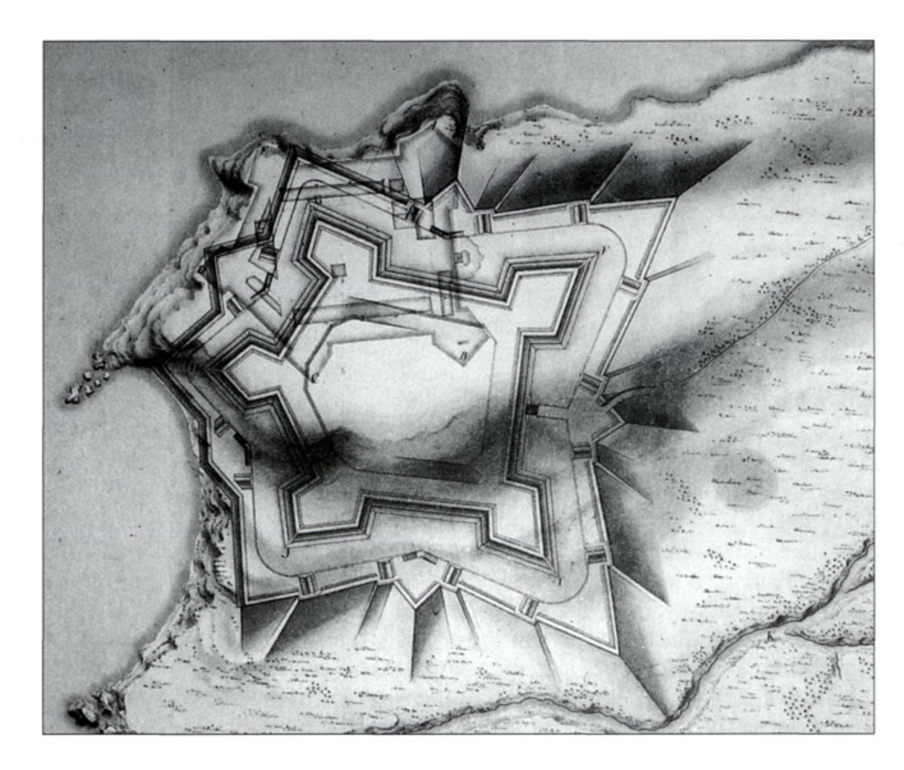
The garrisons

From the 1490s, the main forts of the Spanish Main were garrisoned by regular soldiers. In forts protecting cities, such as Havana or San Juan, militiamen assisted the regulars during emergencies. During the 16th century, the precise status of the garrisons of the Spanish Main was rather vague. As in Europe, captains gathered men-at-arms about them. There is little doubt that, from the 1490s to the 1550s, the soldiers who came to America were primarily adventurers who were seeking to gain their fortune by the sword under the leadership of a conquistador such as Hernan Cortez. Thus, towns such as Santo Domingo or Santiago de Cuba might have hundreds of men-at-arms of various sorts looking for opportunities in an expedition that they hoped would be lucrative, as troops were not paid regularly. These soldiers were not garrison troops as such, but would defend a town in case of an attack. The only paid garrison official was the *alcaide* (commander) in charge of a *fortaleza*, the first being appointed from 1509 at Santo Domingo, Santiago and Concepción with several more at Cartagena, Cumana, Santa Marta and Trinidad in the 1520s. The first sizeable attacks by pirates and corsairs occurred at that time. There were very few garrison soldiers anywhere, the most important contingent being a group of perhaps 35 at Santo Domingo, then the capital and most important town in the Spanish Indies. This lack of regular garrisons remained for most of the 16th century; a few soldiers might be seen in forts, but they were not permanently resident, as men-at-arms preferred going on expeditions in search of riches.

The last quarter of the 16th century saw the advent of the first really permanent troops on the establishment. In 1582, a *compania de presidio* was assigned to Havana. This was an infantry company that was to serve in a military post (the *presidio*) with a set number of paid men on the establishment, or *dotación*. As time went on, other permanent companies were established in San Juan, Panama, Santo Domingo, Cartagena de Indias, Veracruz, and so on. These troops were



Plan of the citadel of San Juan de Ulua, at Veracruz. From 1774, much work went into this fortification to make its bastions and outer defences a regular design. The bastions were all built to the same size and a large ravelin was built on the side facing land. This 1826 plan shows its finished appearance. (Instituto de Historia y Cultura Militar, Madrid)

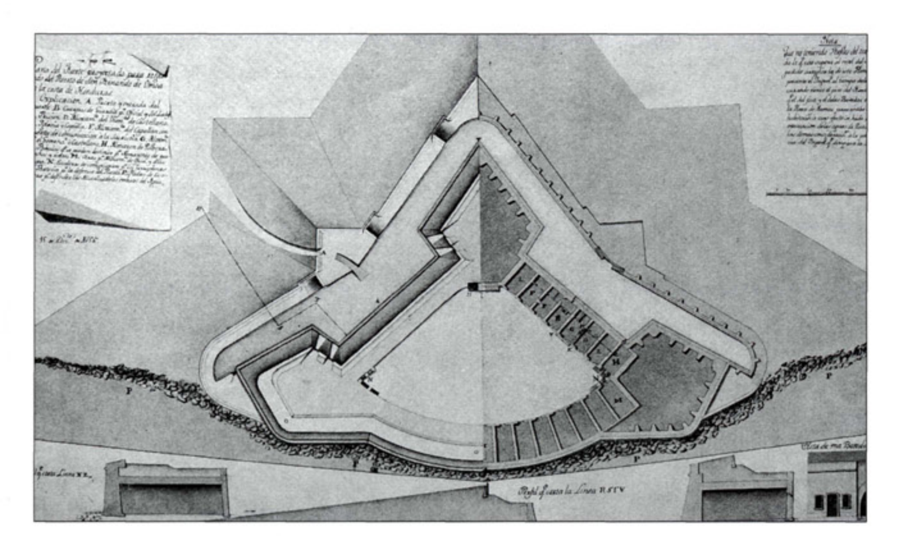


Plan of Fort San Diego in Acapulco, Mexico, built from 1778 to 1783. In 1776, a disastrous hurricane destroyed the old fort. The safety of the convoy coming from Manila was a major priority and the Spanish authorities in Mexico immediately approved an expanded redesign for Fort San Diego. This plan shows the outline of the first fort built from 1617 over the larger second fort built from 1778. (Instituto de Historia y Cultura Militar, Madrid)

often neglected during the 17th century and might not be supplied or paid for years. The garrisons of Cartagena de Indias and Panama might have only ten men per company since recruits were sparse. Over 80 per cent of the enlisted men, sometimes considered as 'semi-convicts', came from Spain (60 per cent from Andalucia) and had very poor living conditions in the garrisons, certainly until the 18th century. By contrast, 17th-century officers were usually experienced military men and over 70 per cent had previously served in Flanders. Nearly all were from Spanish military families and, once in a colonial garrison, tended to remain there and integrate into the middle and upper classes.

Until the 18th century, the units mounting guard in colonial fortifications were organized as independent companies. In 1719, the various companies at Havana were grouped into a regiment that was called Fijo de Habana. *Fijo* meant fixed or permanent, and that became the designation for regular colonial troops. In 1736, a *fijo* battalion was organized in Cartagena de Indias, followed by units at Puerto Rico and Santo Domingo three years later. More colonial *fijo* units were later raised in other colonies. The majority of units were infantry to which were attached artillerymen and, in certain garrisons, mounted units.

Sensing increasing threats from the 1730s, the Spanish government decided to send metropolitan line regiments to reinforce certain colonial garrisons. A first contingent of 600 men detached from the Lisboa, Toledo and Navarra regiments were sent to Portobello and Panama in 1736. A further 2,300 men were sent to Cartagena de Indias in 1739–40; they were detached from the España, Lisboa, Aragon and Grenada regiments, and formed the bulk of the defenders during the abortive British siege in 1741. Losses from fever were high among peninsular troops, but their presence as reinforcements was seen as essential following the failure of the British attack on Cartagena de Indias. Many battalions from Spain were sent to the Spanish Main in the following years and decades, and were known as the refuerza or metropolitan forces that would return to Spain after a few years in the colonies. The *fijo* colonial regiments continued to be the main colonial force that permanently stood guard in the forts of the Spanish Main. Possibly emulating a French experiment in Martinique and Guadeloupe, the Spanish authorities disbanded the Fijo de



Plan of Fort San Fernando de Omoa, on the coast of Honduras, as reconstructed from 1756. It featured the triple bastion design found on a much larger scale in the fortress of San Carlos de la Cabaña at Havana and also seen in an unused proposal for Veracruz. In October 1779, the fort was nearly finished but only had a tiny garrison that could not resist when a far stronger British force arrived. But the British did not hold it for very long. In November, the captain-general of Guatemala, Don Matias de Galvez, led a powerful force of Spanish colonial regulars and militia that besieged the fort from 24 November. The small British garrison left and the fort was reoccupied by the Spanish on 28 November 1779. (Instituto de Historia y Cultura Militar, Madrid)

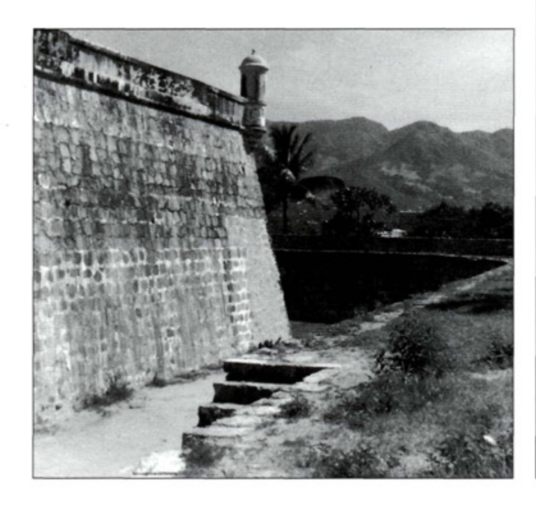
Puerto Rico battalion in 1770 and posted only metropolitan battalions on the island. It was eventually seen that a colonial infantry unit was preferable for permanent garrison duty and a Fijo de Puerto Rico regiment was raised in 1790.

Overall, the number of colonial garrison troops was remarkably low until the 18th century. In 1710, there were only about 250 permanent soldiers in the West Indies and Florida, 800 in Mexico, 350 in Central America, 300 in Venezuela and 950 in Colombia and Panama, for a total of 2,650. This was partly due to the high mortality rate caused, among other things, by the West Indian fevers. One of the worst recorded cases concerned 400 soldiers sent to Puerto Rico in 1598: 230 of them died within two months of their landing on the island. During the 18th century, the number of colonial garrison troops in Spanish America was greatly increased. In 1739, there were 3,100 soldiers in the West Indies and Florida, 1,000 in Mexico, 500 in Central America, 750 in Venezuela and 1,500 in Colombia and Panama for a total of 6,850. In 1770, this had again risen to 6,350 in the West Indies and Florida, 2,800 in Mexico, 1,000 in Central America, 1,000 in Venezuela and 1,600 in Colombia and Panama for a total of 12,750. The colonial infantry units in the Spanish Main had uniforms that were generally blue in the first half of the 18th century. From the 1760s, most uniforms were changed to white. Infantrymen were armed with a .69 calibre musket with bayonet and, until the 1760s, a sword.

Most enlisted men – over 80 per cent – were *peninsulares*, or natives of Spain into the early 18th century. This number rapidly decreased to 30 per cent by 1740 and to only 15 per cent by the 1760s, while the number of *criollos* (men born in the colonies of Spanish origin) enlisted shot up to nearly 85 per cent. However, the origins of *criollos* could be quite mixed: according to a sample of 201 soldiers, 42 per cent defined themselves as white; 22 per cent Indian; 7 per cent mixed; and 25 per cent mulatto. The proportion of foreigners was very low at all times, being at less than 2.5 per cent. Half defined their trade as labourers, less than 15 per cent reported having a trade, a few were students or musicians and the rest did not mention any occupation. Most soldiers served between 20 and 25 years and left the service at an average age of 45. Enlistment periods varied, but eight years was the standard in Havana.

During the 18th century, the growth of the garrisons in the Spanish Main led to an increase in documents dealing with the status of the officers and men. According to surveys in some of these enormous record banks (now kept at the archives in Sevilla

The north-west bastion of Fort San Diego of Acapulco, Mexico. This photo (taken in the 1960s) shows the walls built in the late 1770s with the typical Spanish sentry box at the end of the bastion. When the fort was 'restored' some years later, it was deemed appropriate to literally cut off these historic sentry boxes. (Photo by A. Ulrich Koch)



RIGHT **Fort San Cristobal, San Juan, Puerto Rico, c.1790**

The Castillo de San Cristobal is amongst the largest fortifications built by the Spanish in America, covering some 11 hectares. It was mostly built between 1765 and 1783 to protect the eastern approaches of San Juan. The core of the work was the relatively small central fort (**1**) with its vaulted casemates (**2**) sited on a hill overlooking the city and the countryside to the west. Below the main parade ground four large cisterns were built holding some 2,700,000 litres of water from rain channelled by a pipe system. The fort was the central focus for the remarkable works that extended westwards and southwards. The most imposing was the very large hornwork (**3**) extending westwards, which included the work's main battery (**4**) surmounted by a wide cavalier (**5**). This hornwork sloped downwards and connected with the city walls (**6**) on the south side. In front of the hornwork and the city walls was the 18m-wide Great Moat (**7**). Extensive outer works were also constructed further east of the Great Moat. The San Carlos Ravelin (**8**) was the most northerly, the highest and the most powerful, with embrasures for a dozen guns. To its south was the Trinidad Counterguard (**9**) whose nine embrasures were spread across four levels, as the terrain sloped downwards to the Santiago Ravelin (**10**), which could hold eight cannon. The Santiago Ravelin had the first opening (**11**) by which one could enter the city by the land gate (**12**). The other entrance was by the city into the fort (**13**), which was only for military purposes. It exited though the Great Moat to the San Carlos Ravelin (**14**). There were further outworks and small forts to the west, allowing for a defence in depth. Many of these were destroyed in the late 19th century as the city expanded.

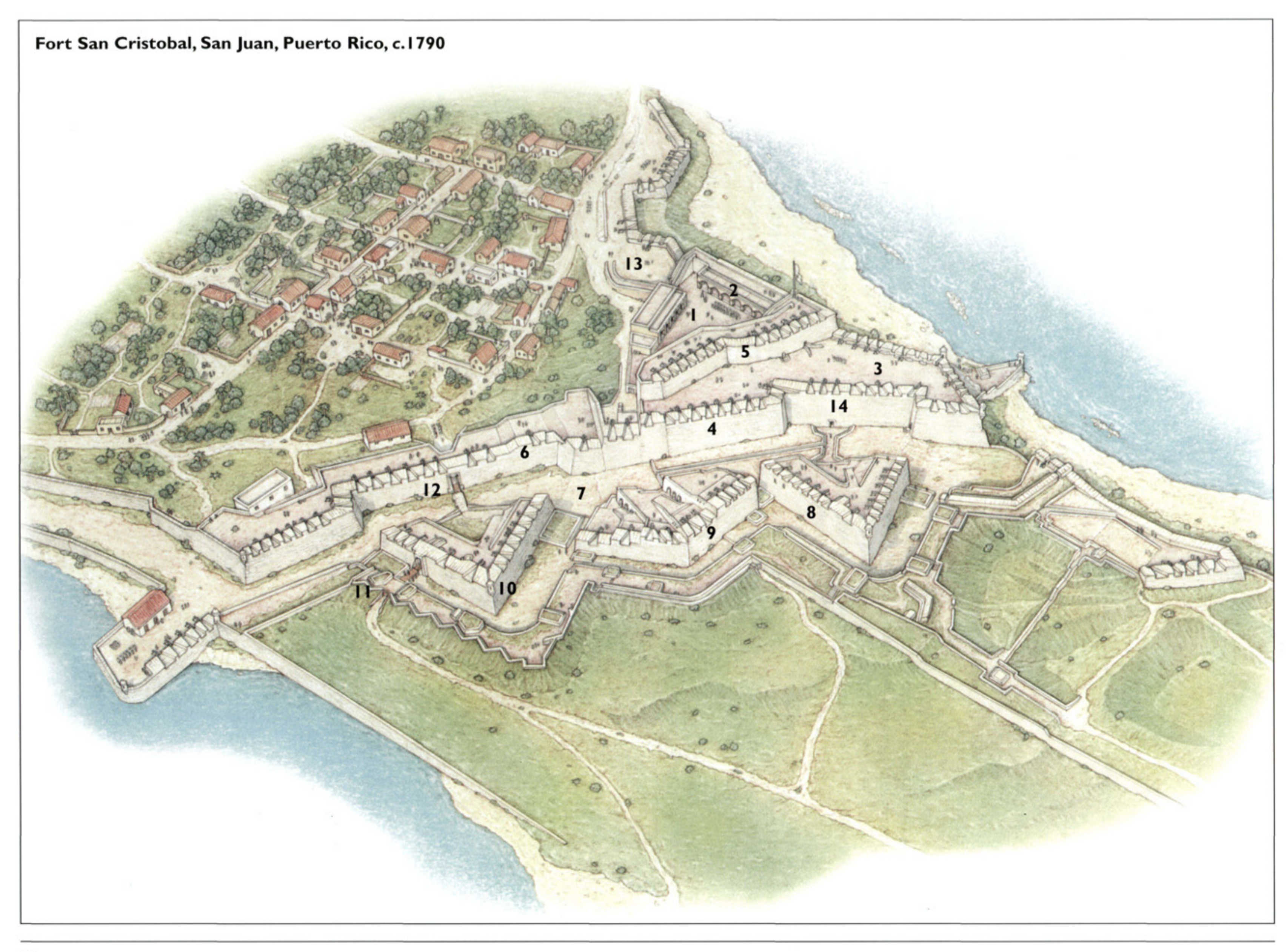
and Simancas), the vast majority of enlisted men, up to 94 per cent, could not read or write. It seems many soldiers were married with an average of 2.5 children each. According to social impact studies on St Augustine (Florida) and San Juan (Puerto Rico) by historians Marchena Fernandez and Martin Rebolo, the economic and social influence of the garrison was considerable in the communities that they guarded. In Florida in 1763, the 535 officers and men posted there had 465 wives, 866 children, 272 slaves and 64 servants, so that over 53 per cent of the entire population were dependents of the 17 per cent that made up the military garrison. Another 5 per cent, mostly traders and civil officials, was dependent indirectly on the military. Such statistics could probably be repeated on studies pertaining to other isolated forts such as Omoa or San Juan in Nicaragua. The impact of the garrison was also quite important in large fortress towns according to a survey of San Juan (Puerto Rico) in 1765. There, the garrison of 2,257 officers and men had 1,876 women, children, slaves and servant as dependents, making up 26.84 per cent and 29.28 per cent respectively of the total population, with another 11.85 per cent being indirect dependents. Studies of cities such as Havana or Cartagena de Indias would likely show the same influences on economic and social life.

Officers came mostly from Spain until the later part of the 18th century. In 1740, 63 per cent of the officers in regular colonial units were *peninsulares* born in Spain, 34.5 per cent were *criollos* and less than 3 per cent were foreign born. By 1780, the majority, 48.4 per cent, were *criollos* and 47.5 per cent were Spanish *peninsulares*, a tendency that continued in favour of the *criollos* in the following decades.



LEFT Officer of the Morenos Libre Disciplined Militia Company of Veracruz, 1767. The creation of a system of disciplined urban and provincial militias in the Spanish empire after the Seven Years War mobilized many more men in units that were armed, uniformed and given training. They included units of free coloureds intended to serve as light troops such as this company in Veracruz. Most *Morenos* companies wore caps and a red jacket with blue collar and cuffs, as well as baggy breeches. In Veracruz, the officers' uniforms were distinguished by gold lace at the buttonholes and edging the jacket, as well as the usual gilt gorget. The enlisted men had the same uniform, but without lace. (Archivo General de Indias, Sevilla/A. Ulrich Koch)

Fort San Cristobal, San Juan, Puerto Rico, c.1790



The forts today

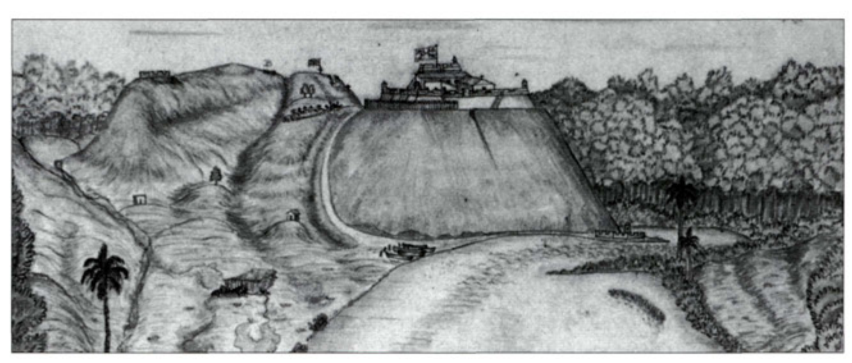
The great fortresses of the Spanish Main are still major and very attractive elements of the cities they once guarded. They are now invaded daily by hordes of tourists and have become major elements in local economies. The garrisons have been replaced by tour guides, park wardens and historians.

In Havana, San Juan, Puerto Rico, and St Augustine, Florida, the restorations have been extensive and all have historic museum displays. None of these forts should disappoint visitors. In Puerto Rico and Florida, the efforts at historic interpretation are remarkable. Fortifications such as Santiago de Cuba, Santo Domingo, Puerto Plata (Dominican Republic), Cartagena de Indias (Colombia) and Puerto Cabello (Venezuela) have also been restored and, on the whole, well maintained. Cartagena de Indias is the only large city of the Spanish Main that has retained all of its city walls, which still enclose the historic town. In Mexico, Veracruz's San Juan de Ulua and Campeche have been maintained but the fort at Acapulco has undergone a questionable restoration.

Many other forts, such as at Portobello and Chagres (Panama), and San Fernando de Omoa (Honduras), are kept as stabilized partial ruins. They are usually situated in less visited, isolated places, and while most of their bastions and walls remain, the buildings within have partly or wholly disappeared. Forts like these nevertheless make unforgettably evocative visits. In places such as Panama City or Merida (Mexico), fortifications have completely disappeared with the growth of these cities.



LOWER RIGHT Plan of San Juan, Puerto Rico, in 1792. Situated on a peninsula, the town of San Juan faces the Caribbean Sea to the north (top) and its large harbour to the south (bottom). The east side (left) had the narrow entrance to the harbour guarded by San Juan's Morro castle, an island fort (not shown) and many batteries. The west side (right) was the city's weakest point, as enemy troops could storm through the peninsula narrows and break in. Various defence works were installed over the years, but from 1765 to 1772, the formidable San Cristobal fortification complex was built with its maze of batteries, ravelins, a hornwork and a cavalier. This made any future attack very difficult, as the British discovered during their failed 1797 siege. (Instituto de Historia y Cultura Militar, Madrid)



BOTTOM RIGHT *East View of St Juan Castle* (Nicaragua) in April 1780. This picture was sketched about 1.5km from the fort by a member of the British expedition of 1,800 regulars, Honduras 'Baymen' and allied Moskito Indians led by Col. Polson. The fort had not yet been captured as Spain's white flag with the red ragged cross of Burgundy is flying over it. As can be seen, the 'castle' overlooked a narrow spot on the river whose traffic was further controlled by a battery on the shore below the fort. Once captured on 16 April, holding Fort San Juan was another matter as the British force was now exposed to Nicaragua's deadly summer fevers. A thousand men perished, the Indians deserted and only 380 men survived. In September 1780, they evacuated and the Spanish easily reoccupied the fort. (Anne S.K. Brown Military Collection, Brown University, Providence, USA/James L. Kochan)

Glossary of fortification terms

Abbatis A defensive barricade or row of obstructions made up of closely spaced felled trees, their tops toward the enemy, their branches trimmed to points and interlaced where possible.

Banquette A continuous step or ledge at the interior base of a parapet on which defenders stood to direct musket fire over the top of the wall.

Bastion A projection in the enceinte, made up of four sides, two faces and two flanks, which better enabled a garrison to defend the ground adjacent to the main or curtain walls. Called *baluarte* in Spanish.

Barbette See *en barbette*.

Battery An emplacement for artillery.

Breastwork See *parapet*.

Casa fuerte Literally, a 'strong house'.

Casemate A mortar-bomb or shell-proof chamber located within the walls of defensive works; generally pierced with openings for weapons, loopholes for muskets or embrasures for cannon.

Castillo Literally a 'castle' but the term could be used to denote almost any type of fort.

Cavalier A raised construction, usually in a fortress, holding a second tier of guns in a battery.

Citadel A strong fort within, or a part of, a larger fortification.

Cordon The coping or top course of a scarp or a rampart, sometimes of different coloured stone and set proud from the rest of the wall. The point where a rampart stops and a parapet begins.

Counterguard Defensive work built in a ditch in front of a bastion to give it better protection.

Covered way A depression, road or path in the outer edge of a fort's moat or ditch, generally protected from enemy fire by a parapet, at the foot of which might be a banquette enabling the coverage of the glacis with musketry.

Cunette A furrow located in the bottom of a dry ditch for the purpose of drainage.

Curtain The wall of a fort between two bastions.

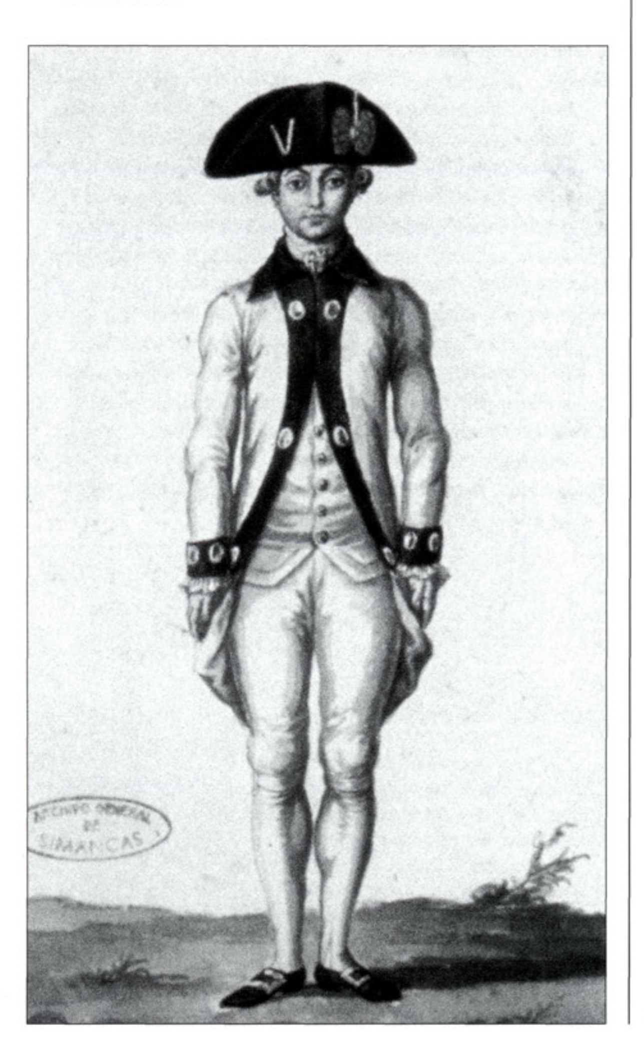
Demi-bastion A half-bastion with only one face and one flank.

Demi-lune Triangular-shaped defensive work built in a ditch in front of a bastion or of a curtain wall.

Ditch A wide, deep trench around a defensive work. When filled with water it was termed a moat or wet ditch; otherwise a dry ditch or fossé.

Embrasure An opening in a wall or parapet allowing cannon to fire through it, the gunners remaining under cover. The sides of the embrasure were called cheeks, the bottom the sole, the narrow part of the opening, the throat, and the wide part the splay.

En barbette An arrangement for cannon to be fired directly over the top of a low wall instead of through embrasures.



A soldier of the Fijo de Puerto Rico Regiment in the 1790s. First raised in 1741, disbanded in 1766, and re-raised in 1789–90, this unit played a distinguished part in repulsing the British attack on San Juan in 1797. Twelve years later, Britain had become Spain's ally and the regiment fought with British troops at the capture of Santo Domingo from the French. Like most Spanish units, its uniform during the 1790s was white. This regiment's peculiar blue lapels with only three oversized white metal buttons was, however, unique in all the Spanish forces in Europe and overseas. (Watercolour by José Campeche. Archivo General de Simancas)

Enfilade fire Fire directed from the flank or side of a body of troops, or along the length of a ditch, parapet or wall. Guns in the flank of a bastion can direct enfilade fire along the face of the curtain.

Epaulement A parapet or work protecting against enfilade fire.

Fascines Long bundles of sticks or small-diameter tree branches bound together for use in revetments, for stabilizing earthworks, filling ditches, etc.

Fortaleza Term used by the Spanish to denote a fortification, generally a castle-style structure.

Fossé or foss See *ditch*, dry.

Fraise A defence of closely placed stakes or logs, 2–3m long, driven or dug into the ground and sharpened; arranged to point horizontally or obliquely outward from a defensive position.

Gabion A large round woven wicker cylinder intended to be set in place and filled with earth, sand or stones.

Gallery An interior passageway or corridor that ran along the base of a fort's walls.

Glacis A broad, gently sloped earthwork or natural slope in front of a fort, separated from the fort proper by a ditch and outworks and so arranged as to be swept with musket or cannon fire.

Gorge The interval or space between the two curtain angles of a bastion. In a ravelin, the area formed by the flanked angle and either left open or enclosed.

Guardhouse The headquarters for the daily guard.

Guérite (Sp. = *Garita*) A small lookout watchtower, usually located on the upper outer corner of a bastion. These are prominent in the design of Spanish Main forts.

Half-bastion See *demi-bastion*.

Hornwork A work made up of a bastion front, two half-bastions, a curtain and two long sides termed branches. It enclosed an area immediately adjacent to a fort or citadel to create another layer of defence.

Loopholes Small openings in walls or stockades through which muskets were fired.

Magazine A place for the storage of gunpowder, arms or goods generally related to ordnance.

Merlon The solid feature between embrasures in a parapet.

Moat See *ditch*.

Outwork An outer defence, inside the glacis, but outside the body of the place. A ravelin is an outwork.

Palisade A high fence made of stakes, poles, palings, or pickets, supported by rails and set endwise in the ground from 15–22cm apart. (See *stockade*.)

Parapet A breastwork or protective wall over which defenders, standing on banquettes, fired their weapons. The parapet was usually built on top of the fort's rampart.

Postern A passage leading from the interior of a fortification to the ditch.

Presidio Spanish term denoting a fortified military post.

Rampart The mass of earth, usually faced with masonry, formed to protect an enclosed area. The main wall of a fortress.

Ravelin An outwork consisting of two faces forming a salient angle at the front and a flank angle to the rear that was usually closed at the gorge. Ravelins were separated from the main body of the place by moats or ditches and functioned to protect the curtain wall.

Redoubt An enclosed fortification without bastions.

Revetment The sloping wall of stone or brick supporting the outer face of a rampart.

Sallyport A passageway within the rampart, usually vaulted, leading from the interior of a fort to the exterior, primarily to provide for sorties.

Sap A trench and parapet constructed by besiegers to protect their approaches toward a fortification.

Scarp The interior side of a ditch or the outer slope of a rampart.

Stockade A line or enclosure of logs or stakes set upright in the earth with no separation between them, to form a barrier 2.5m or higher. Stockades were generally provided with loopholes. The loopholes were reached by banquettes or elevated walks. See also *palisades*.

Traverse A parapet or wall thrown across a covered way, a terreplein, ditch or other location to prevent enfilade or reverse fire along a work.

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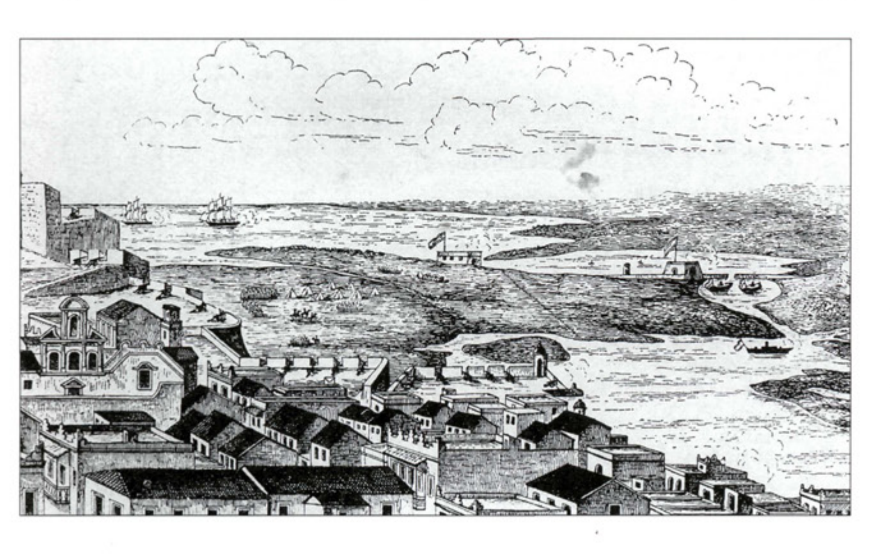
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View of the British siege of San Juan, Puerto Rico, in April 1797. This engraving after a rendering by José Campeche, who was present during the siege, shows the western end of the city protected by the formidable Fort San Cristobal works. Some of the garrison parades outside between the walls and the Spanish forward second defence line. British ships are firing broadsides. The British camp was further west (upper right). (Author's collection)

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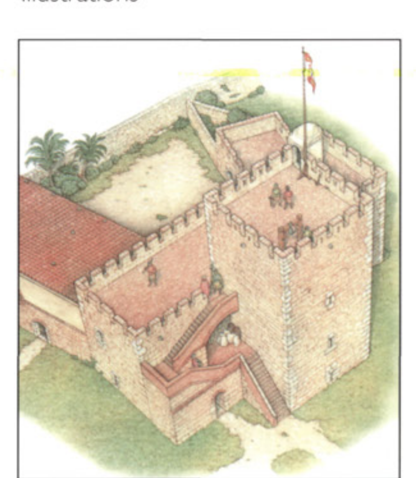
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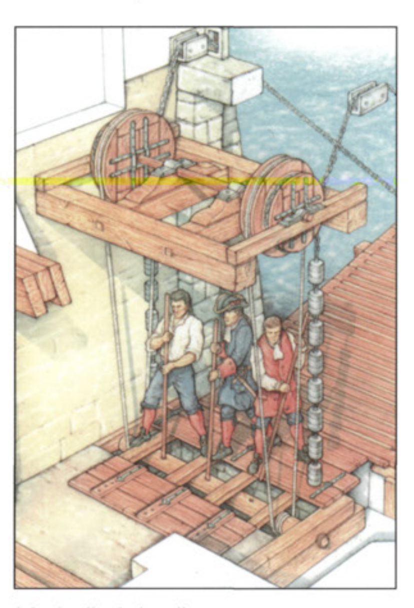
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